Government of Pakistan

National Vocational and Technical Training Commission

Prime Minister's Hunarmand Pakistan Program

"Skills for All"

Course Contents / Lesson Plan

Course Title: Database Administration (ORACLE DBA Track)

Duration: 6 Months

Course Details / Description & Preliminaries

Course Title	Database Administration (ORACLE DBA Track)
Objectives and Expectations	**Employable skills for Bachelor of Computer Science (BCS) / B.Sc (Computer Science) through an intensive course on Database Administration (ORACLE DBA TRACK)**

This is a special course designed to address unemployment in the youth. The course aims to achieve the above objective through hands on practical training delivery by a team of dedicated professionals having rich market/work experience. This course is therefore not just for developing a theoretical understanding/back ground of the trainees. Contrary to that, it is primarily aimed at equipping the trainees to perform commercially in a market space in independent capacity or as a member of a team.

The course therefore is designed to impart not only technical skills but soft skills as well as entrepreneurial skills deemed essential for that purpose i.e. communication skills; marketing skills (including freelancing); personal grooming of the trainees and inculcation of the positive work ethics to foster better citizenship in general and improve the image of Pakistani work force in particular.

Main Expectations:

In short, the course under reference should be delivered by professional instructors in such a robust hands- on manner that the trainees are comfortably able to employ their skills for earning money (through wage/self-employment) at its conclusion.

This course thus clearly goes beyond the domain of the traditional training practices in vogue and underscores an expectation that a market centric approach will be adopted as the main driving force while delivering it. The instructors should therefore be experienced enough to |

	be able to identify the training needs for the possible market roles available out there. Moreover, they should also know the strengths and weaknesses of each individual trainee to prepare them for such market roles during/after the training.
Key Features of Training& Special Modules	i. Specially designed practical tasks to be performed by the trainees have been included in the Annexure-I to this document. Their weekly distribution has also been indicated in the weekly lesson plan given in this document. The record of all tasks performed individually or in groups must be preserved by the management of the training Institute clearly labeling name, trade, session etc so that these are ready to be physically inspected/verified through monitoring visits from time to time. The weekly distribution of tasks has also been indicated in the weekly lesson plan given in this document.
	ii. In order to materialize the main expectations, a special module on **Job Search & Entrepreneurial Skills** has been included in the course through which, the trainees will be made aware of the Job search techniques in the local as well as international job markets (Gulf countries). Awareness around the visa process and immigration laws of the most favored labour destination countries also forms a part of this module. Moreover, the trainees would also be encouraged to venture into self-employment and exposed to the main requirements in this regard. It is also expected that a sense of civic duties/roles and responsibilities will be inculcated in the trainees to make them responsible citizens of the country.
	iii. A module on **Work Place Ethics** has also been included to highlight the importance of good and positive behavior at work place in the line with the best practices elsewhere in the

world. An outline of such qualities has been given in the Appendix to this document. Its importance should be conveyed in a format that is attractive and interesting for the trainees such as through PPT slides + short video documentaries.Needless to say that if the training provider puts his heart and soul into these, otherwise non-technical components, the image of Pakistani workforce would undergo a positive transformation in the local as well as international job markets.

In order to maintain interest and motivation of the trainees throughout the course, modern techniques such as:

- Motivational lectures
- Success stories
- Case studies (in documentary or presentation format)

These would be employed as additional training tools wherever possible (these are explained in the subsequent section on Training Methodology).

Lastly, evaluation of the competencies acquired by the trainees will be done objectively at various stages of the training and proper record of the same will be maintained. Suffice to say that for such evaluations, practical tasks would be designed by the training providers to gauge the problem solving abilities of the trainees.

Training Tools/ Methodology

(i) Motivational Lectures

The proposed methodology for the training under reference employs motivation as a tool. Hence besides the purely technical content, a trainer is required to include elements of motivation in his/her lecture to inspire the trainees to utilize the training opportunity to the full and strive towards professional excellence. Motivational lectures may also include general topics such as the importance of moral values and civic

role & responsibilities as a Pakistani. A motivational lecture should be delivered with enough zeal to produce a deep impact on the trainees. It may comprise of the following:

- Clear Purpose to convey message to trainees effectively.
- Personal Story to quote as an example to follow.
- Trainees fit so that the situation is actionable by trainees and not represent a just idealism.
- Ending Points to persuade the trainees on changing themselves.

A good motivational lecture should help drive creativity, curiosity and spark the desire needed for trainees to want to learn more.

Impact of a successful motivational strategy is amongst others commonly visible in increased class participation ratios. It increases the trainees' willingness to be engaged on the practical tasks for longer time without boredom and loss of interest because they can clearly see in their mind's eye where their hard work would take them in short (1-3 years); medium (3 -10 years) and long term (more than 10 years).

This tool is designed for training providers to ensure arrangements for regular well planned motivational lectures as part of a coordinated strategy interspersed throughout the training period as suggested in the weekly lesson plans in this document.

(ii) Success Stories

Another effective way of motivating the trainees is by means of Success Stories. Its inclusion in the weekly lesson plan at regular intervals has been recommended till the end of the training. A success story may be disseminated orally, through a presentation or by means of a video/documentary of someone that has risen to fortune, acclaim, or brilliant achievement. A success story shows how a person achieved his goal through hard work, dedication and devotion. An inspiring success story contains compelling and significant facts articulated clearly and easily comprehendible words. Moreover, it is helpful if it is

assumed that the reader/listener knows nothing of what is being revealed.Optimum impact is created when the story is revealed by the person himself either:

- Directly (in person) or,
- Through an audio/ videotaped message.

It is expected that the training provider would collect relevant high quality success stories for inclusion in the training as suggested in the weekly lesson plan given in this document.

Suggestive structure and sequence of a sample success story and its various shapes can be seen at annexure III.

(iii)   Case Studies

Where a situation allows, case studies can also be presented to the trainees to widen their understanding of the real life specific problem/situation and to explore the solutions.

In simple terms, the case study method of teaching uses a real life case example/a typical case to demonstrate a phenomenon in action and explain theoretical as well as practical aspects of the knowledge related to the same. It is an effective way to help the trainees comprehend in depth both the theoretical and practical aspects of the complex phenomenon in depth with ease. Case teaching can also stimulate the trainees to participate in discussions and thereby boost their confidence. It also makes class room atmosphere interesting thus maintaining the trainee interest in training till the end of the course.

Depending on suitability to the trade, the weekly lesson plan in this document may suggest case studies to be presented to the trainees. The trainer may adopt a power point presentation or video format for such case studies whichever is deemed suitable but it's important that only those cases are selected that are relevant and of a learning value.

The Trainees should be required and supervised to carefully analyze the cases. For the purpose they must be encouraged to inquire and collect specific information / data, actively participate in the discussions

	and intended solutions of the problem / situation. Case studies can be implemented in the following ways:-
	<ol type="i"> - A good quality trade specific documentary(At least 2-3 documentaries must be arranged by the training institute) - Data security & Safetycase studies(2 cases regarding data security, database management andsafety must be arranged by the training institute). - Field visits (At least one visit to a trade specific major industry/ Software house/ Data base setup site must be arranged by the training institute)
Learning Outcome of the Course	After completion of this course, the trainees must be able to: • have in-depth understanding of the DBA features of Oracle, specific Oracle concepts and knowledge required for the OCP exam, and tips and techniques for passing the Oracle OCP exam on your first attempt. • have command on all Oracle Database Administration topics including SGA instance management, file &tablespace management, user administration & security and table & index management. • gain first-hand experience on the key Oracle DBA concepts required to pass the Oracle OCP exam.In addition, this course will provide sample OCP exam questions and an opportunity to access your overall knowledge of Oracle DBA concepts.
Entry level of trainees	Since intake level is Bachelor of Computer Science (BCS) / B.Sc (Computer Science) so expectations from the trainees are: • Have knowledge of Programming Concepts • Have studied languages such as C, C++, JAVA,C#.net • Have concept of Computer system

Course Execution Plan	Total Duration of Course: 6 Months (26 Weeks)
	Class Hours: 4 Hours per day (06 Days/Week)
	Theory: 20% Practical: 80%
	Weekly Hours: 24 Hours Per week
	Total Contact Hours: 600 Hours
Companies Offering Jobs in the respective trade	Following are the major companies offering job opportunities:- International Companies:- - Zong - Telenor - Warid - Google - Intel - Microsoft - Many more Besides overseas employment, the following Pakistani companies/firms/Organizations are also offering jobs as well, with details as under:- - Major Hospitals (Like RMI, Aga Khan, Shaukat Khanum, etc.) - NADRA - Ufone - PTCL - NTC - Passport Office - Excise and Taxation Office
Job Opportunities	The pass outs can work in the following capacities:- - Database Administrator - Systems / Data Analyst - SQL Developer - Database Architect - Data Architect - Database Manager
No of Students	25
Learning Place	Classroom / Lab / Software Houses/ Database Setups

WEEKLY SCHEDULE OF TRAINING

Scheduled Week	Module Title	Learning Units	Remarks
Week 1	**Introduction**	**Course Introduction** **Motivational Lecture** (For further detail please see Page No: 3-4) - Applications of the course **Institute/Work ethics** (For further detail please see Annexure-II at the end) - Job market overview	**Task– 1** (Details may be seen at Annexure I)
Week 2	**Writing Basic SQL SELECT Statements**	**Objectives of Course** - Basic Select Statements - Selecting All Columns - Selecting Specific Columns - Writing SQL Statements - Column Heading Defaults - Arithmetic Expressions - Using Arithmetic Operators - Operator Precedence - Using Parentheses - Defining a Null Value - Null Values in Arithmetic Expressions - Using Column Aliases - Using the Concatenation Operator - Using Literal Character Strings - Duplicate Rows - Eliminating Duplicate Rows - SQL and iSQL*Plus Interaction - SQL Statements versus iSQL*Plus Commands - Overview of iSQL*Plus	**Task 2 to 5** (Details may be seen at Annexure I)

	Restricting and Sorting Data	- Logging In to iSQL*Plus - The iSQL*Plus Environment - Displaying Table Structure - Interacting with Script Files - Limiting Rows Using a Selection - Limiting the Rows Selected - Using the WHERE Clause - Character Strings and Dates - Comparison Conditions - Using Comparison Conditions - Using the between Condition - Using the IN, LIKE, NULL Conditions - Logical Conditions - Using the AND, OR, NOT Operators - Rules of Precedence - ORDER BY Clause - Sorting in Descending Order - Sorting by Column Alias - Sorting by Multiple Columns - **Institute/Work ethics** (For further detail please see Annexure-II at the end)	
Week 3	**Single-Row Functions**	- **Motivational Lecture** (For further detail please see Page No:3-4) - SQL Functions - Two Types of SQL Functions - Single-Row Functions - Character Functions - Using Case Manipulation Functions - Using the Character-Manipulation Functions - Number Functions	- **Task 6 to 8** (Details may be seen at Annexure I)

		• Using the ROUND, TRUNC, MOD Functions	
		• Working with Dates	
		• Using Arithmetic Operators with Dates	
		• Using Date Functions	
		• Conversion Functions	
		• Implicit Data-Type Conversion	
		• Explicit Data-Type Conversion	
		• Elements of the Date Format Model	
		• Using the TO_CHAR Function with Dates	
		• Using the TO_CHAR Function with Numbers	
		• Using the TO_NUMBER and TO_DATE Functions	
		• RR Date Format	
		• Nesting Functions	
		• General Functions	
		• Using the NVL, NVL2 Functions	
		• Using the NULLIF Function	
		• Using the COALESCE Function	
		• Conditional Expressions	
		• Using the CASE Expression	
		• Using the DECODE Function	
		• **Success story** (For further detail please see Page No: 4-5 and Annexure-III at the end)	
Week 4	**Displaying Data from Multiple Tables**	• Obtaining Data from Multiple Tables • Generating a Cartesian Product • Types of Joins • Joining Tables Using Oracle Syntax	• **Task 9 to 12** (Details may be seen at Annexure I)

		• What Is an Equijoin?	

- What Is an Equijoin?
- Retrieving Records with Equijoins
- Additional Search Conditions Using theAND Operator
- Qualifying Ambiguous Column Names
- Using Table Aliases
- Joining More than Two Tables
- Non equijoins
- Retrieving Records with Nonequijoins
- Outer Joins and its Syntax
- Using Outer Joins
- Self Joins
- Joining a Table to Itself
- Joining Tables Using SQL: 1999 Syntax
- Creating Cross Joins
- Creating Natural Joins
- Retrieving Records with Natural Joins
- Creating Joins with the USING Clause
- Retrieving Records with the USING Clause
- Creating Joins with the ON Clause
- Retrieving Records with the ON Clause
- Creating Three-Way Joins with the ON Clause
- INNER versus OUTER Joins
- LEFT OUTER JOIN
- RIGHT OUTER JOIN
- FULL OUTER JOIN
- Additional Conditions
- **Case Study** (For further detail please see Page No: 5-6)

| Week 5 | Aggregating Data Using Group Functions | • What Are Group Functions?
 • Types of Group Functions
 • Group Functions Syntax
 • Using the AVG, SUM, MIN, MAX, COUNT Functions
 • Using the DISTINCT Keyword
 • Group Functions and Null Values
 • Using the NVL Function with Group Functions
 • Creating Groups of Data: GROUP BY Clause Syntax
 • Using the GROUP BY Clause
 • Grouping by More Than One Column
 • Using the GROUP BY Clause on Multiple Columns
 • Illegal Queries Using Group Functions
 • Excluding Group Results: The HAVING Clause
 • Using the HAVING Clause
 • Nesting Group Functions
 • **Success story** (For further detail please see Page No: 4-5 and Annexure-III at the end) | • **Task 13 & 14** (Details may be seen at Annexure I)

 • **1st Visit to Software House** |
| Week 6 | **Subqueries** | • **Motivational Lecture**(For further detail please see Page No:3-4)
 • Using a Subquery to Solve a Problem
 • Subquery Syntax
 • Guidelines for Using Subqueries
 • Types of Subqueries
 • Single-Row Subqueries
 • Executing Single-Row Subqueries | • **Task 15 &16** (Details may be seen at Annexure I) |

		• Using Group Functions in a Subquery	
		• The HAVING Clause with Subqueries	
		• What Is Wrong with This Statement?	
		• Will This Statement Return Rows?	
		• Multiple-Row Subqueries	
		• Using the ANY Operator in Multiple-Row Subqueries	
		• Using the ALL Operator in Multiple-Row Subqueries	
		• Null Values in a Subquery	
		• **Institute/Work ethics** (For further detail please see Annexure-II at the end)	
Week 7	**Producing Readable Output with iSQL*Plus Manipulating Data**	• Using the Substitution Variable	• **Task 17 to 21** (Details may be seen at Annexure I)
		• Character and Date Values with Substitution Variables	
		• Specifying Column Names, Expressions, and Text	
		• DEFINE and UNDEFINE Commands	
		• Using the DEFINE Command with & Substitution Variable	**2ndVisit to Software House**
		• Using the VERIFY Command	
		• Customizing the iSQL*Plus Environment	
		• SET Command Variables	
		• iSQL*Plus Format Commands	
		• Using the COLUMN Command	
		• COLUMN Format Models	
		• Using the BREAK Command	
		• Using the TTITLE and BTITLE Commands	
		• Data Manipulation Language(DML)	
		• Adding a New Row to a Table	

		• The INSERT Statement Syntax
		• Inserting New Rows
		• Inserting Rows with Null Values
		• Inserting Special Values
		• Inserting Specific Date Values
		• Creating a Script
		• Copying Rows from Another Table
		• Changing Data in a Table
		• The UPDATE Statement Syntax
		• Updating Rows in a Table
		• Updating Two Columns with a Subquery
		• Updating Rows Based on Another Table
		• Updating Rows: Integrity Constraint Error
		• Removing a Row from a Table
		• The DELETE Statement
		• Deleting Rows from a Table
		• Deleting Rows Based on Another Table
		• Deleting Rows: Integrity Constraint Error
		• Using a Subquery in an INSERT Statement
		• Using the WITH CHECK OPTION Keyword on DML Statements
		• Overview of the Explicit Default Feature
		• Using Explicit Default Values
		• The MERGE Statement
		• MERGE Statement Syntax
		• Merging Rows
		• Database Transactions
		• Advantages of COMMIT and ROLLBACK Statements
		• Controlling Transactions

		• Rolling Back Changes to a Marker	
		• Implicit Transaction Processing	
		• State of the Data Before COMMIT or ROLLBACK	
		• State of the Data After COMMIT	
		• Committing Data	
		• State of the Data After ROLLBACK	
		• Statement-Level Rollback	
		• Read Consistency	
		• Implementation of Read Consistency	
		• Locking	
		• Implicit Locking	
		• **Case Study** (Data security & Safety) (For further detail please see Page No: 5-6)	
Week 8	**Creating and Managing Tables Including Constraints**	• **Motivational Lecture** (For further detail please see Page No:3-4) • Database Objects • Naming Rules • The CREATE TABLE Statement • Referencing Another User's Tables • The DEFAULT Option • Creating Tables • Tables in the Oracle Database • Querying the Data Dictionary • Data Types • Datetime Data Types • Timestamp With Time Zone Data Type • Timestamp With Local Time Data Type • Interval Year To Month Data Type • Creating a Table by Using a Subquery	• **Task 22 to 25** (Details may be seen at Annexure I) • **2nd Monthly Test on the pattern of Oracle OCP Examination**

		• The ALTER TABLE Statement	
		• Adding a Column	
		• Modifying a Column	
		• Dropping a Column	
		• The SET UNUSED Option	
		• Dropping a Table	
		• Changing the Name of an Object	
		• Truncating a Table	
		• Adding Comments to a Table	
		• What Are Constraints?	
		• Constraint Guidelines	
		• Defining Constraints	
		• The NOT NULL Constraint	
		• The UNIQUE Constraint	
		• The PRIMARY KEY Constraint	
		• The FOREIGN KEY Constraint	
		• FOREIGN KEY Constraint Keywords	
		• The CHECK Constraint	
		• Adding a Constraint	
		• Dropping a Constraint	
		• Disabling Constraints	
		• Enabling Constraints	
		• Cascading Constraints	
		• Viewing Constraints	
		• Viewing the Columns Associated with Constraints	
		• **Success story** (For further detail please see Page No: 4-5 and Annexure-III at the end)	• **Freelancing** (Details may be seen at Annexure VI)
		• Start Freelancing& Familiarity with platforms	

Week 9	**Creating Views**	- Database Objects - What Is a View? - Why Use Views? - Simple Views and Complex Views - Creating a View - Retrieving Data from a View - Querying a View - Modifying a View - Creating a Complex View - Rules for Performing DML Operations on a View - Using the WITH CHECK OPTION Clause - Denying DML Operations - Removing a View - Inline Views **Institute/Work ethics** (For further detail please see Annexure-II at the end)	• **Task 26 & 27** (Details may be seen at Annexure I) **3rd Visit to Data Center (e.g. NADRA, Passport, ETO Offices)**
Week 10	**Other Database Objects**	- What Is a Sequence? - The CREATE SEQUENCE Statement - Confirming Sequences - NEXTVAL and CURRVAL Pseudo columns - Using&Modifying a Sequence - Removing a Sequence - What is an Index? - How Are Indexes Created? - Creating an Index - When to Create an Index - When Not to Create an Index - Confirming Indexes	• **Task 28 & 29** (Details may be seen at Annexure I)

		• Function-Based Indexes	
		• Removing an Index	
		• Synonyms	
		• Creating and Removing Synonyms	
		• **Case Study** (For further detail please see Page No: 5-6)	
Week 11	**Controlling User Access Enhancements to the GROUP BY Clause**	• Controlling User Access • Privileges • System Privileges • Creating Users • User System Privileges • Granting System Privileges • What Is a Role? • Creating and Granting Privileges to a Role • Changing Your Password • Object Privileges • Granting Object Privileges • Using the WITH GRANT OPTION and PUBLIC Keywords • Confirming Privileges Granted • How to Revoke Object Privileges • Revoking Object Privileges • Database Links • Review of Group Functions • Review of the GROUP BY Clause • Review of the HAVING Clause • GROUP BY with ROLLUP and CUBE • **Success story** (For further detail please see Page No: 4-5 and Annexure-III at the end)	• **Task 30 & 31** (Details may be seen at Annexure I) • **4th Visit to Data Center (Hospitals, Universities, Industries, Multinational Company)**

Week 12	Administration1 (Introduction)	• **Motivational Lecture** (For further detail please see Page No:3-4) • Install, create, and administer Oracle Database 11g & 12c • Configure the database • Employ basic monitoring procedures • Implement a backup and recovery strategy • Move data between databases and files • Role of database administrator (DBA) • Plan an Oracle database installation • Optimal Flexible Architecture • Install the Oracle software Oracle Universal Installer • Create a database with the Database Configuration Assistant (DBCA) • **Freelancing concepts, how to start, step by step process from account opening to taking orders and contract signing etc** • **Freelancing platforms** • **Tips for how to increase earning**	**Freelancing** (Details may be seen at Annexure VI)
Week 13		**Overview of the Previous Weeks & Mid Term Examination on the Pattern of Oracle OCP Examination**	
Week 14	Employable Project/Assignmentin addition to regular classes (duration from Week 14 to Week-25)	• Overview of Mid-Term Examination • Guidelines to the Trainees for selection of students employable project like final year project (FYP) • Assign Independent project to each Trainee • A project based on trainee's aptitude and acquired skills.	•**The Trainer can assign any Project from the sample projects to a group of 5 Trainees** (Details may be seen at Annexure IV)

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		• Designed by keeping in view the emerging trends in the local market as well as across the globe.	
		• The project idea may be based on Entrepreneur.	
		• Leading to the successful employment.	
		• The duration of the project will be 6 weeks	
		• Ideas may be generated via different sites such as:	
		https://1000projects.org/ https://nevonprojects.com/ https://www.freestudentprojects.com/ https://technofizi.net/best-computer-science-and-engineering-cse-project-topics-ideas-for-students/	
		• Final viva/assessment will be conducted on project assignments.	
		• At the end of session the project will be presented in skills competition	
		• The skill competition will be conducted on zonal, regional and National level.	
		• The project will be presented in front of Industrialists for commercialization	
	Managing the Oracle Instance Managing Database Storage Structures	• Start and stop the Oracle database and components	
		• Use Enterprise Manager (EM)	
		• Access a database with SQL*Plus and iSQL*Plus	
		• Modify database initialization parameters	
		• Describe the stages of database startup	
		• Describe the database shutdown options	• **Task 32 & 33** (Details may be seen at Annexure I)
		• View the alert log	

		• Access dynamic performance views	
		• Table row data storage	
		• Purpose of tablespaces and data files	
		• Create and manage tablespaces	
		• Obtain tablespace information	
		• Describe the main concepts and functionality of Automatic Storage Management (ASM)	
		• **Case Study** (For further detail please see Page No: 5-6)	
Week 15	**Administering User Security** **Managing Schema Objects**	• **Motivational Lecture**(For further detail please see Page No:3-4) • Create and manage database user accounts • Authenticate users • Assign default storage areas (tablespaces) • Grant and revoke privileges • Create and manage roles • Create and manage profiles • Implement standard password security features • Control resource usage by users • Explain the use of temporary tables • Use the data dictionary • Identify and administer PL/SQL objects • Describe triggers and triggering events • Monitor and resolve locking conflicts • **Success story** (For further detail please see Page No: 4-5and Annexure-III at the end)	• **Task 34 & 35** (Details may be seen at Annexure I)

Week 16	**Managing Undo Data**	• Explain DML and undo data generation	• **Task – 36** (Details may be seen at Annexure I)
		• Monitor and administer undo data	
		• Describe the difference between undo data and redo data	
		• Configure undo retention	
		• Guarantee undo retention	
		• Use the Undo Advisor	• **Visit IT Software house to see how they apply security options**
	Implementing Oracle Database Security	• DBA responsibilities for security	
		• Apply the principle of least privilege	
		• Enable standard database auditing	
		• Specify audit options	
		• Review audit information	
		• Maintain the audit trail	
		• **Institute/Work ethics** (For further detail please see Annexure-II at the end)	
		• Case Study	
Week 17		• **Motivational Lecture** (For further detail please see Page No:3-4)	• **Task – 37** (Details may be seen at Annexure I)
	Configuring the Oracle Network Environment	• Use Enterprise Manager to:	
		➢ Create additional listeners	
		➢ Create Oracle Net Service aliases	
		➢ Configure connect-time failover	
		➢ Control the Oracle Net Listener	• **4th Monthly Test on the pattern of Oracle OCP Examination**
		• Use tnsping to test Oracle Net connectivity	
	Proactive Maintenance	• Identify when to use shared servers versus dedicated servers	
		• Use statistics	
		• Manage the Automatic Workload Repository (AWR)	
		• Use the Automatic Database Diagnostic Monitor (ADDM)	

	Job Search & Entrepreneurial Skills (Job Search)	• Describe the advisory framework • Set alert thresholds • Use server-generated alerts • Use automated tasks • **Job market & job search** • Job related skills. • Interpersonal skills • Communication skills	
Week 18	**Performance Management**	• Use Enterprise Manager to monitor performance • Tune SQL by using the SQL Tuning Advisor • Tune SQL by using the SQL Access Advisor • Use Automatic Shared Memory Management (ASSM) • Use the Memory Advisor to size memory buffers • View performance-related dynamic views • Troubleshoot invalid and unusable objects	• **Task – 38** (Details may be seen at Annexure I) **Freelancing** (Details may be seen at Annexure VI)
	Job Search & Entrepreneurial Skills (CV Building)	• **Session on CV Building** • How to make notable CV • Dos and Don'ts of CV making	
Week 19	**Database Backup Concepts**	• **Motivational Lecture** (For further detail please see Page No:3-4) • Identify the types of failure that may occur in an Oracle database • Describe ways to tune instance recovery • Identify the importance of checkpoints, redo log files, and archive log files • Configure ARCHIVELOG mode	• **Task – 39** (Details may be seen at Annexure I)

		• Create consistent database backups	
		• Back up your database without shutting it down	
		• Create incremental backups	
		• Automate database backups	
		• Monitor the flash recovery area	
Week 20	**Performing Database Recovery** **Performing Flashback** **Job Search & Entrepreneurial Skills** (self business)	• Redo log file • Data file • Describe Flashback Database • Restore the table content to a specific point in the past with Flashback Table • Recover from a dropped table • View the contents of the database as of any single point in time with Flashback Query • See versions of a row over time with Flashback Versions Query • View transaction history or a row with Flashback Transaction Query • **Institute/Work ethics** (For further detail please see Annexure-II at the end) • **Session on Self-Employment** • How to start a Business • Requirements (Capital, Physical and Human requirements etc) • Benefits/Advantages of self employment	• **Task – 40** (Details may be seen at Annexure I)
Week 21	**Moving Data**	• **Motivational Lecture** (For further detail please see Page No:3-4) • Describe available ways for moving data • Create and use directory objects	• **Task – 41** (Details may be seen at Annexure I)

	Oracle 11g, 12c Architecture	• Use SQL*Loader to load data from a non-Oracle database (or user files) • Explain the general architecture of Data Pump • Use Data Pump Export and Import to move data between Oracle databases • Use external tables to move data via platform-independent files • Review the Oracle Database 10g, 11g &12c architecture • **Case Study** (For further detail please see Page No: 5-6) • **Institute/Work ethics**(For further detail please see Annexure-II at the end) • **Success story**(For further detail please see Page No: 4-5 and Annexure-III at the end)	
Week 22	**Configuring Recovery Manager**	• Describe the RMAN repository and recovery catalog • Describe the Media Management Library interface • Configure database parameters that affect RMAN operations • Connect to the three different types of databases by using RMAN • Configure two types of retention policies • Change RMAN default settings with CONFIGURE	• **Task 42 to 44** (Details may be seen at Annexure I) • **5th Monthly Test on the pattern of Oracle OCP Examination**
	Recovering from Noncritical Losses	• Recover temporary tablespaces • Recover a redo log group member • Recover from a lost index • Re-create the password file	

	Overseas Employment (General Employment)	• **Session on General Overseas Employment opportunities.** • Job search Avenues. • Visa Processes and other necessary requirements. • Immigration Information (Legal agerequirements, Health Certificate, Police Clearance &Travel Insurance) • **Institute/Work ethics** (For further detail please see Annexure-II at the end)	
Week 23	**Flashback Database &Recovery** **Database Corruption**	• **Motivational Lecture** (For further detail please see Page No:3-4) • Perform complete or incomplete user-managed recovery • Identify situations where incomplete recovery is necessary • Perform complete or incomplete recovery by using RMAN • Perform incomplete recovery based on time, SCN, log sequence, restore points, or the cancel method • Recover an automatically backed up control file • Use Enterprise Manage to perform recovery • Recover read-only tablespaces • Query the recycle bin • Configure Flashback Database • Perform Flashback Database to a point in time • Monitor flashback log statistics • Enable and disable the Flashback	• **Task 45 to 47** (Details may be seen at Annexure I) **Freelancing** (Details may be seen at Annexure VII)

		Database feature	
		• Use the Enterprise Manager Recovery Wizard to perform Flashback Database	
		• Use guaranteed restore points with Flashback Database	
		• Identify the causes of database corruption:	
		• Hardware	
		• Software	
		• Detect database corruption by using:	
		• ANALYZE	
		• DBVERIFY	
		• DB_BLOCK_CHECKING	
		• DBMS_REPAIR	
		• Repair corruptions by using RMAN	
		• **Institute/Work ethics** (For further detail please see Annexure-II at the end)	
Week 24	**Memory Management**	• Describe the memory components in the SGA	• **Task 48 to 51** (Details may be seen at Annexure I)
		• Implement Automatic Shared Memory Management	
		• Manually configure SGA parameters	
		• Configure automatic PGA memory management	
		• Diagnose database performance issues	
		• Configure the Automatic Workload Repository	
		• Access the database advisors	
		• Use the SQL Access Advisor to improve database performance	
		• Use asynchronous COMMIT effectively	
		• Determine appropriate table types for your	

		requirements: heap, partition, IOT, or cluster	
		• Perform related DBA tasks:	
		• Estimating the size of new tables	
		• Analyzing growth trends	
		• Managing optimizer statistics	
		• Reorganizing schema objects online	
		• Proactively monitor and manage tablespace space usage	
		• Use the Segment Advisor	
		• Reclaim wasted space from tables and indexes by using the segment shrink functionality	
		• Identify the features of Automatic Storage Management (ASM)	
		• Set up initialization parameter files for ASM and database instances	
		• Configure the Database Resource Manager	
		• Access and create resource plans	
		• Create consumer groups	
		• Monitor the Resource Manager	
		• **Success story** (For further detail please see Page No: 4-5 and Annexure-III at the end)	
Week 25	**Preparation for Oracle OCP Examination**	• Preparation of trainees for Oracle OCP Examination	• **OCP Examination** (Details may be seen at Annexure-V)
		• Registration of Trainees forOracle OCP Examination.	
		• Mock exercises for Oracle OCP Examination.	

		• **Continual Guidance of trainees till certification of Oracle OCP Examination.**	
Week 26	**Cloud Architecture**	• Database Security • Using Globalization Support • New Feature in 12c • Workshop • Final Project Demonstration/Examination • **Final Assessment** • **Continual Guidance of trainees till certification of Oracle OCP Examination.**	**Final Assessment**

Tasks For Oracle Certified Professional (OCP) Database

Administrator (DBA) Track

Note: The followingtasks are required to be performed multiple times by each trainee/group until sufficient proficiency level is acquired. The trainer is required to determine the number of times the task needs to be repeated by a trainee as per his/her low/medium/high level of skill and proficiency during any stage of the course.

Task No.	Task	Description	Week No
1.	**Installation / Uninstallation**	Install and uninstall Oracle 11g	**Week-1**
2.	**Use of Select command**	Select all data from the table. Display the last name concatenated with the job ID, separated by a comma and space. Name this column Employee and Title.	**Week-2**
3.	**Use of Select command with parameters**	Show the structure of the EMPLOYEES table. Create a query to display the last name, job code, hire date, and employee number for each employee, with employee number appearing first. Save your SQL statement to a file named lab1_7.sql.	
4.	**Use of Select &Unique commands together**	Create a query to display unique job codes from the EMPLOYEES table.	
5.	**Use of Select & greater Thancommands together**	Create a query to display the last name and salary of employees earning more than $12,000.Place your SQL statement in a text file named lab2_1.sql. Run your query.	
6.	**Automatically calculate increase in salary by 15% and display new salary**	For each employee, display the employee ID number, last-named, salary, and salary increased by 15%and expressed as a whole number. Label the column New Salary. Place your SQL statement in a text file named lab32.sql.	
7.	**Display the name of only those employees whose names starts with J, A, or Mwith first letter capitalized. Also calculate the length of their names**	Write a query that displays the employee's last names with the first letter capitalized and all other letters lowercase and the length of the names, for all employees whose name starts with J, A, or M. Give each column an appropriate label. Sort the results by the employees' last names.	**Week-3**
8.	**Calculate the total months of employment**	For each employee, display the employee's last name, and calculate the number of months between today and the date the employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months	

		employed. Round the number of months up to the closest whole number.	
9.	**Display only few columns from the table**	Write a query to display the last name, department number, and department name for all employees.	
10.	**Display data of only those employees who earn commission**	Write a query to display the employee last name, department name, location ID, and city of all employees who earn a commission.	
11.	**Display only those records whose last name is in lower case letters**	Display the employee last name and department name for all employees who have a (lowercase) in their last names. Place your SQL statement in a text file named lab4_4.sql.	**Week-4**
12.	**Text manipulation column names**	Display the employee last name and employee number along with their manager's last name and manager number. Label the columns Employee, Emp#, Manager, and Mgr#, respectively.Place your SQL statement in a text file named lab4_6.sql.	
13.	**Display the highest, lowest, sum, and average salary of all employees**	Display the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number. Place your SQL statement in a text file named lab5_6.sql.	**Week-5**
14.	**Display the minimum, maximum, sum, and average salary for each job type**	Modify the query in lab5_4.sql to display the minimum, maximum, sum, and average salary for each job type. Resave lab5_4.sql to lab5_5.sql. Run the statement in lab5_5.sql.	
15.	**Display the record of employees who earn more than the average salary**	Create a query to display the employee numbers and last names of all employees who earn more than the average salary. Sort the results in ascending order of salary.	**Week-6**
16.	**Display the details of Executive employees only**	Display the department number, last name, and job ID for every employee in the Executive department.	
17.	**Adding data in the first row of table**	Add the first row of data to the MY_EMPLOYEE table from the following sample data. Do not list the columns in the INSERT clause.	
18.	**Adding data in the second row of table**	Populate the MY_EMPLOYEE table with the second row of sample data from the preceding list. This time, list the columns explicitly in the INSERT clause.	
19.	**Use of Insert Command**	Populate the table with the next two rows of sample data by running the INSERT statement in the script that you created	**Week-7**
20.	**Use of insert command for populating table**	Populate the table with the last row of sample data by modifying the statements in the script that you created in step 6. Run the statements in the script.	
21.	**Delete all records from a table**	Empty the entire table. Confirm that the table is empty.	

22.	**Create a Table named Dept**	Create the DEPT table based on the following table instance chart. Place the syntax in a script called lab9_1.sql, then execute the statement in the script to create the table.	
23.	**Populate one table with the data of another table**	Populate the DEPT table with data from the DEPARTMENTS table. Include only columns that you need.	**Week-8**
24.	**Increase the column size of last name column**	Modify the EMP table to allow for longer employee last names. Confirm your modification.	
25.	**Adding a Primary Key in a table**	Add a table-level PRIMARY KEY constraint to the EMP table on the ID column. The constraint should be named at creation. Name the constraint my_emp_id_pk	
26.	**Create a View**	Create a view called EMPLOYEES_VU based on the employee numbers, employee names, and department numbers from the EMPLOYEES table. Change the heading for the employee name to EMPLOYEE	**Week-9**
27.	**Selecting the data from View**	Select the view name and text from the USER_VIEWS data dictionary view.	
28.	**Use of sequence and primary key constraint**	Create a sequence to be used with the primary key column of the DEPT table. The sequence should start at 200 and have a maximum value of 1000. Have your sequence increment by ten numbers. Name the sequence DEPT_ID_SEQ	**Week-10**
29.	**Use of Non-Unique index**	Create a nonunique index on the foreign key column (DEPT_ID) in the EMP table.	
30.	**Define privileges**	You are the DBA. You are creating many users who require the same system privileges. What should you use to make your job easier?	**Week-11**
31.	**Grant access to another user**	Grant another user access to your DEPARTMENTS table. Have the user grant you query access to his or her DEPARTMENTS table.	
32.	**Topping & Starting Database instances**	Viewing and modifying initialization parameters. Stopping and starting the database instance Viewing log files	**Week-14**
33.	**Obtain Tablespaces information**	Describe the storage of table row data in blocks. Create and manage tablespaces. Obtain tablespace information	
34.	**Create a Profile to limit resources**	Creating a profile to limit resource consumption • Creating two roles: – HRCLERK – HRMANAGER • Creating four new users: – One manager and two clerks – One schema user for the next practice session	**Week-15**
35.	**Manage and Shrink Space**	Using threshold alerts to proactively manage	

		tablespaces Using the Segment Advisor to shrink space Viewing alerts and alert history in SQL*Plus and Enterprise Manager	
36.	**Calculating and Modifying an undo tablespace to support a 48-hour retention interval**	Viewing system activity. Calculating undo tablespace sizing to support a 48-hour retention interval. Modifying an undo tablespace to support a 48-hour retention interval.	**Week-16**
37.	**Configuring Listener**	Configure new listener and Oracle Services	**Week-17**
38.	**Tips to improve Performance**	What are some tips to improve the performance of SQL queries bottlenecks that affect the performance of a Database	**Week-18**
39.	**Archive Log of Database**	Configure database into Archive Log. Perform an Online backup.	**Week-19**
40.	**Backup Operations**	Perform the following • Logical Backups • Cold Backups • Hot Backups (Archive log)	**Week-20**
41.	**Use of DIRECT, COMPRESS and INDEXFILE options**	Use of DIRECT=Y option in export Use of COMPRESS option in export How to improve export performance? How to improve imp performance? Use of INDEXFILE option in import Use of IGNORE option in import	**Week-22**
42.	**Configure RMAN**	Configure RMAN, Perform complete database backup using RMAN. Perform Incremental backup using RMAN	**Week-23**
43.	**Detect corruption in RMAN**	Detect corruption of the block in the RMAN database, What are the steps to fix this?	
44.	**RMAN Recovery**	What are the steps to install the RMAN recovery catalog?	
45.	**Oracle Flashback drop**	Disable and enable Flashback How to use Oracle Flashback drop	**Week-24**
46.	**Recovery**	Recover a cold backup using Operating System Command. Recover a data base using Operating System RMAN.	
47.	**Recovering Table**	Recover a single table, User schema using Imp/Expand Data pump utility	
48.	**Display Sizes**	Show sizes of the following • SGA Size • SYSTEM tablespace • Program Global Area (PGA) • Database Buffers • SGA Target Size	**Week-25**
49.	**How to Enable and disable Automatic Memory**	Enable and disable Automatic Memory Management commands	

	Management commands		
50.	**Configure SGA Component sizes**	Configure SGA Component sizes manually commands	
51.	**Install Oracle Cloud**	Install oracle cloud control 12c on Linux	

Workplace/Institute Ethics Guide

Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue or value to strengthen character and individual abilities. It is a set of values centered on importance of work and manifested by determination or desire to work hard.

The following ten work ethic are defined as essential for student success:

1. **Attendance:**

   Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

2. **Character:**

   Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

3. **Team Work:**

   The ability to get along with others including those you don't necessarily like. The ability to carry your own weight and help others who are struggling. Recognize when to speak up with an ideas and when to compromise by blend ideas together.

4. **Appearance:**

   Dress for success, set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a life time

5. **Attitude:**

   Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems and procedures in light of changing responsibilities.

6. **Productivity:**

   Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take

pride in your work, do things the best you know how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

7. **<u>Organizational Skills</u>:**

Make an effort to improve, learn ways to better yourself. Time management, utilize time and resources to get the most out of both. Takes an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

8. **<u>Communication</u>:**

Written communication, being able to correctly write reports and memos. **Verbal communications,** being able to communicate one on one or to a group.

9. **<u>Cooperation</u>:**

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing workplace situations and the application of new or different skills.

10. **<u>Respect</u>:**

Work hard, work to best of your ability. Carry out orders, do what's asked the first time. Show respect, accept and acknowledge an individual's talents and knowledge. Respects diversity in the workplace, including showing due respect for different perspectives, opinions and suggestions.

Suggestive Format and Sequence Order of Success Story

S. No	Key Information	Detail/Description
1.	**Self & Family background**	• Self-introduction • Family background and socio economic status, • Education level and activities involved in • Financial hardships etc
2.	**How he came on board NAVTTC Training/or got trained through any other source**	• Information about course, apply and selection • Course duration, trade selection • Attendance, active participation, monthly tests, interest in lab work
3.	**Post training activities**	• How job / business (self-employment) was set up • How capital was managed (loan (if any) etc). • Detail of work to share i.e. where is job or business being done; how many people employed (in case of self-employment/business) • Monthly income or earnings and support to family • Earning a happy life than before
4.	**Message to others (under training)**	• Take the training opportunity seriously • Impose self-discipline and ensure regularity • Make Hard work pays in the end so be always ready for the same.

Note: Success story is a source of motivation for the trainees and can be presented in a number of ways/forms in a NAVTTC skill development course as under:-

1. To call a passed out successful person of institute. He/she will narrate his/her success story to the trainees in his/her own words and meet trainees as well.

2. To see and listen to a recorded video/clip (5 to 7 minutes) showing a successful person Audio video recording that has to cover the above mentioned points.

3. The teacher displays the picture of a successful trainee (name, trade, institute, organization, job, earning per month etc) and narrates his/her story in teacher's own motivational words.

Real-World Projects/Use-Cases for Trainees

Each trainees/group of trainees will be assigned real-world use-cases as oracle database project to implement and get hands-on experience (Trainer can assign any 5 out of given sample projects to the group. The trainer can also assign other projects as well)

1. INVENTORY CONTROL MANAGEMENT DATABASE PROJECT
Design goals: maintain a proper variety of required items, increase inventory turnover, reduce and maintain optimize inventory and safety stock levels, obtain low raw material prices, reduce storage cost, reduce insurance cost, reduce taxes

2. STUDENT RECORD KEEPING SYSTEM DATABASE PROJECT
Design goals: a student file that contains the information about student, a stream file, a marks file, a fee file, concession/scholarship etc.

3. ONLINE RETAIL APPLICATION DATABASE PROJECT
A customer can register to purchase an item. The customer will provide bank account number and bank name (can have multiple account number). After registration, each customer will have a unique customerid, userid and password. A customer can purchase one or more item in different quantities. The items can of different classes based on their prices. Based on the quantity, the price of the item and discount (if any) on the purchased items, the bill will be generated. A bank account is required to settle the bill. The items can be ordered to one or more suppliers

4. COLLEGE DATABASE PROJECT
A college contains many departments. Each department can offer any number of courses. Many instructors can work in a department, but an instructor can work only in one department. For each department, there is a head, and an instructor can be head of only one department. Each instructor can take any number of courses, and a course can be taken by only one instructor. A student can enroll for any number of courses and each course can have any number of students.

5. RAILWAY SYSTEM DATABASE PROJECT
A railway system, which needs to model the following:
1. Stations
2. Tracks, connecting stations. You can assume for simplicity that only one track exists between any two stations. All the tracks put together to form a graph.
3. Trains, with an ID and a name
4. Train schedules recording what time a train passes through each station on its route.

You can assume for simplicity that each train reaches its destination on the same day and that every train runs every day. Also for simplicity, assume that for each train, for each station on its route, you store
- Time in,
- Timeout (same as time in if it does not stop)
- A sequence number so the stations in the route of a train can be ordered by sequence number.
- Passengers booking consisting of train, date, from-station, to station, coach, seat and passenger name.

6. HOSPITAL MANAGEMENT SYSTEM DATABASE PROJECT

A patient will have unique Patient ID.Full description about the patient about personal detail and phone number, and then Disease and what treatment is going on. The doctor will handle patients, One doctor can Treat more than 1 patient. Also, each doctor will have unique ID. Doctor and Patients will be related. Patients can be admitted to hospital. So different room numbers will be there, also rooms for Operation Theaters and ICU.There are some nurses, and ward boys for the maintenance of hospital and for patient take care.Based upon the number of days and treatment bill will be generated.

7. LIBRARY MANAGEMENT SYSTEM DATABASE PROJECT

A student and faculty can issue books. Different limits for the number of books a student and teacher can issue. Also, the number of days will be distinct in the case of students and teachers for issue any book.Each book will have different ID. Also, each book of the same name and same author (but the number of copies) will have different ID. Entry of all the book will be done, who issue that book and when and also duration. Detail of Fine (when the book is not returned at a time) is also stored.

8. PAYROLL MANAGEMENT SYSTEM DATABASE PROJECT

There will entry (Unique ID) of all the employee of any Organization. According to the date of joining and date up to which salary is created, Number of days will be entered.Basic pay will be defined according to the post of employee and department. Then component like DA, HRA, medical allowance, Arrears will be added, and Charges of Hostel/ Bus, Security, welfare fund and other will be deducted. The number of leaves taken by the employee.

9. HEALTHCARE ORGANIZATION DATABASE PROJECT

This organization provides the following functionalities
- Emergency Care 24x7
- Support Groups
- Support and Help Through calls

Any new Patient is first registered in their database before meeting the doctor. The Doctor can update the data related to the patient upon diagnosis (Including the disease diagnosed and prescription). This organization also provides rooms facility for admitting the patient who is critical. Apart from doctors, this organization has nurses and ward boy. Each nurse and ward boy is assigned to a doctor. Also, they can be assigned to patients (to take care of them). The bill is paid by the patient with cash and E-banking. Record of each payment made is also maintained by the organization. The record of each call received to provide help and support to its existing person is also maintained.

10. RESTAURANT MANAGEMENT DATABASE PROJECT

The restaurant maintains the catalog for the list of food and beverage items that it provides. Apart from providing food facility at their own premises, the restaurant takes orders online through their site. Orders on the phone are also entertained.

To deliver the orders, we have delivery boys. Each delivery boy is assigned to the specific area code. The delivery boy cannot deliver outside the area which is not assigned to the delivery boy (for every delivery boy there can be a single area assigned to that delivery boy). The customer record is maintained so that premium customer can be awarded discounts.

11. DESIGN A SCENARIO AND AN ER DIAGRAM FOR AN IT TRAINING GROUP DATABASE PROJECT

It will meet the information needs of its training program. Clearly indicate the entities, relationships and the key constraints. The description of the environment is as follows:

The company has 10 instructors and can handle up to 100 trainees for each training session. The company offers 4 Advanced technology courses, each of which is taught by a team of 4 or more instructors Each instructor is assigned to a maximum of two teaching teams or may be assigned to do research Each trainee undertakes one Advanced technology course per training session.

12. BLOOD DONATION SYSTEM DATABASE PROJECT

A system in which data of Patient, data of donor, data of blood bank would be saved and will be interrelation with each other

Data of Patient– Patient Name, Patient Id, Patient Blood Group, Patent Disease

Data of Donor– Donor Name, Donor Id, Donor Blood Group, Donor Medical report, Donor Address, Donor Contact number

Data of Blood Bank– Blood Bank Name, Blood Bank Address, Blood bank Donors name, Blood Bank Contact Number, Blood Bank Address

Try to implement such scenario in a database, create a schema for it, an ER diagram for it and try to normalize it.

13. ART GALLERY MANAGEMENT DATABASE PROJECT

Design an E-R Diagram for an Art Gallery. Gallery keeps information about "Artist" their Name, Birthplace, Age & Style of Art about "Art Work," Artist, the year it was made, unique title, Type of art & Prices must be stored. The piece of artwork is classified into various kind like Poetess, Work of the 19th century still life, etc. Gallery keeps information about Customers as their Unique name, Address, Total amount of Dollar, they spent on Gallery and liking of Customers.

14. HOTEL MANAGEMENT SYSTEM DATABASE PROJECT

A hotel is a hive of numerous operations such as front office, booking, and reservation, banquet, finance, HR, inventory, material management, quality management, security, energy management, housekeeping, CRM and more. The hotel has some rooms, and these rooms are of different categories. By room category, each room has the different price. A hotel has some employees to manage the services provided to customers. The customer can book the room either online or by cash payment at the hotel. The customer record is stored in hotel database which contains customer identity, his address, check in time, check out time, etc. hotel provides food and beverages to their customers and generates the bill for this at the time of their check out.

15. SCHOOL MANAGEMENT SYSTEM DATABASE PROJECT

Design a database to maintain information about school staff (staff management system) and students satisfying the following properties:
1. Staff will have their id, name, and classes they are teaching
2. The student will be having the name, roll no, section, class
3. Another table containing the section, subject and teacher information
4. Next will contain fee information for students
5. One contains salary information for teachers
6. Rooms are assigned to classes keeping in mind that there is no time clash of same room or lab, students cannot be entered in more than one section, no student should be there who have not paid fees up to a particular date.

16. WHOLESALE MANAGEMENT SYSTEM DATABASE PROJECT
1. Maintain the details of stock like their id, name, quantity
2. Maintain the details of buyers from which manager has to buy the stock like buyer id, name, address, stock id to be bought
3. Details of customers i.e. name, address, id
4. Defaulters list of customers who have not paid their pending amount
5. List of payment paid or pending
6. The stock that is to buy if quantity goes less than a particular amount.
7. Profit calculation for a month.
8. Quantity cannot be sold to a customer if the required amount is not present in stock and date of delivery should be maintained up to which stock can be provided.

17. SALARY MANAGEMENT SYSTEM DATABASE PROJECT
1. Employee list to be maintained having id, name, designation, experience
2. Salary details having employee id, current salary
3. Salary in hand details having employee id, salary, deduction or any other deduction and net salary to be given and also maintain details of total savings of employee
4. Salary increment to be given by next year if any depending upon constraints
5. Deduction in monthly salary if any depending upon any discrepancy in work and amount to be deducted.

18. ATM MANAGEMENT SYSTEM DATABASE PROJECT
1. How to maintain user accounts
2. How to manage a credit transaction
3. How to manage a debit/withdrawal/ transaction
4. How to manage a transfer transaction

19. Sample-Project-1: Oracle Database Design for Online Job Portal having the objectives as:
- Registration
- Login
- Authenticating
- Updating Profile
- Posting a job and removing or modifying job
- Searching for a job
- Taking online exam
- Feedback

Preparation for Oracle OCP Examination

- The current training is designed in such a way that it prepares the trainees for appearing in Oracle OCP examination.

- Our institute is guiding the students during the training session on how to prepare yourself for the examination.

- Sample exams questions are provided them to attempt. Mocks are given for preparation of the exams.

- University of Peshawar has an agreement with Oracle to establish an Oracle Academy at the University of Peshawar and will provide discounted vouchers for the students of the University.

- Oracle Database certifications are offered at various certification levels. The main categories are:

1. Oracle Certified Associate (OCA) – Oracle Database 12c Administrator

With this certification, an individual can be part of a database management team as a member or an application developer. This level requires the individual to pass one of these SQL exams:

- Oracle Database 12c SQL fundamentals (1Z0-061)
- Oracle Database 12c SQL fundamentals (1Z0-051)
- Oracle Database SQL expert 1Z0-071.

Besides, candidates must pass the oracle Database 12c: Installation and Administration (1Z0-062) exam in order to be considered for this Oracle credential https://www.passitdump.com

The associate certification validates the skills and the ability to creating, retrieving, maintaining and editing data in a database. Primarily, it shows competency in the day-to-day operational management database skills of the associates.

2. Oracle Certified Professional (OCP) – Oracle Database 12c Administrator

Oracle Professional Certification demonstrates skills in large Database Management as well as the application of large-scale database. The ideal candidates for this certification level must possess OCA certification. Additionally, they are required to pass Oracle Database 12c:

Advanced Administration (1Z-063) exam. After successfully passing the exam, the individual needs to submit a course completion form in order to be an Oracle Certified Professional (OCP).

This certification level validates the skills in installation, maintenance, fine-tuning, and troubleshooting of Oracle databases.

Freelancing Opportunity

- During the training, the students will be given hands-on experience on how to start freelancing of the technologies and expertise they obtained.

- As a freelance Oracle database administrator (Oracle DBA), duties focus on maintaining, improving, or securing a database on a temporary, contract basis.

- DBAresponsibilities in this career depend on the needs of each client with whom to work. DBA help in building and maintaining a database based on the client's security and capacity needs and network capabilities. This job includes tasks such as configuring software, updating security systems, and ensuring that data backup systems are operational. DBA duties may also consist of scripting custom applications and troubleshooting for client when database issues arise.

- The qualifications needed to start working as a freelance database Oracle administration include computer skills, a relevant degree or equivalent experience, and professional certification from Oracle. DBA can develop his/her skills by pursuing a degree in computer science, programming, information systems, or information technology. Oracle offers professional certification options, including an Oracle Database Administration Associate, Database Administration Professional, and Database Administrator Master. Freelancers additionally need business skills to attract new clients and negotiate contracts for their services.

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