Advanced Database Management Systems

LAB 1

(SQL-Experiment 1)

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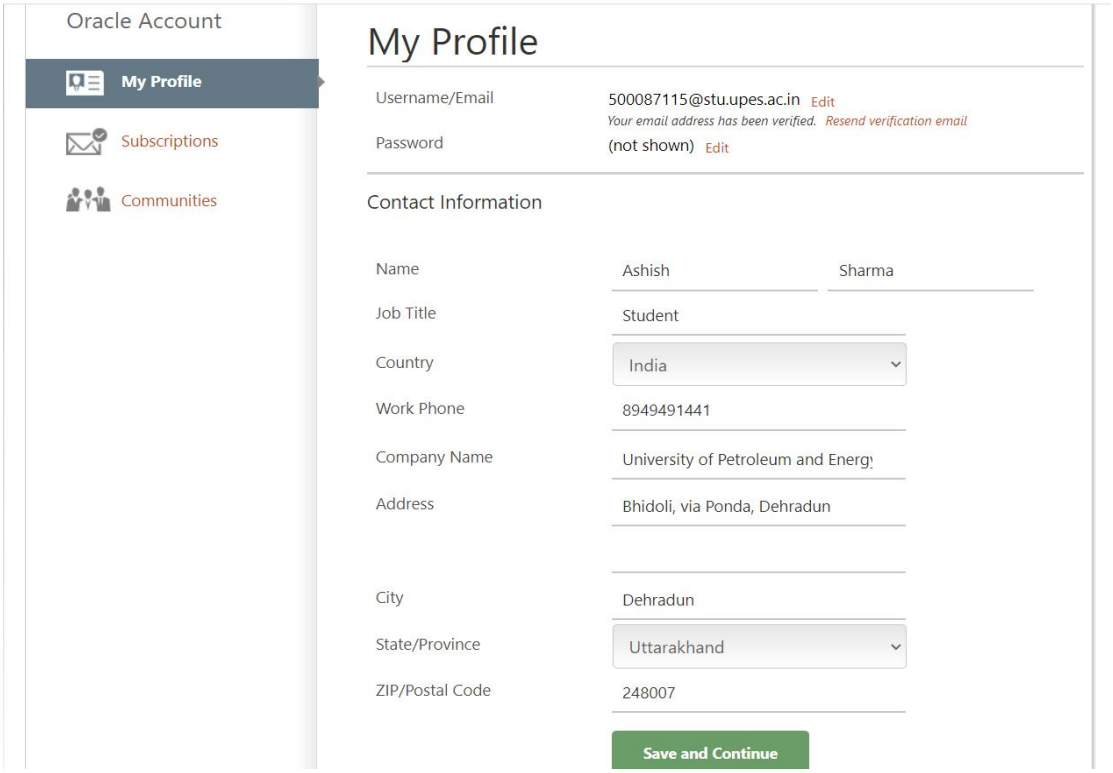
Batch - B4

Enrolment nu -

Activities :

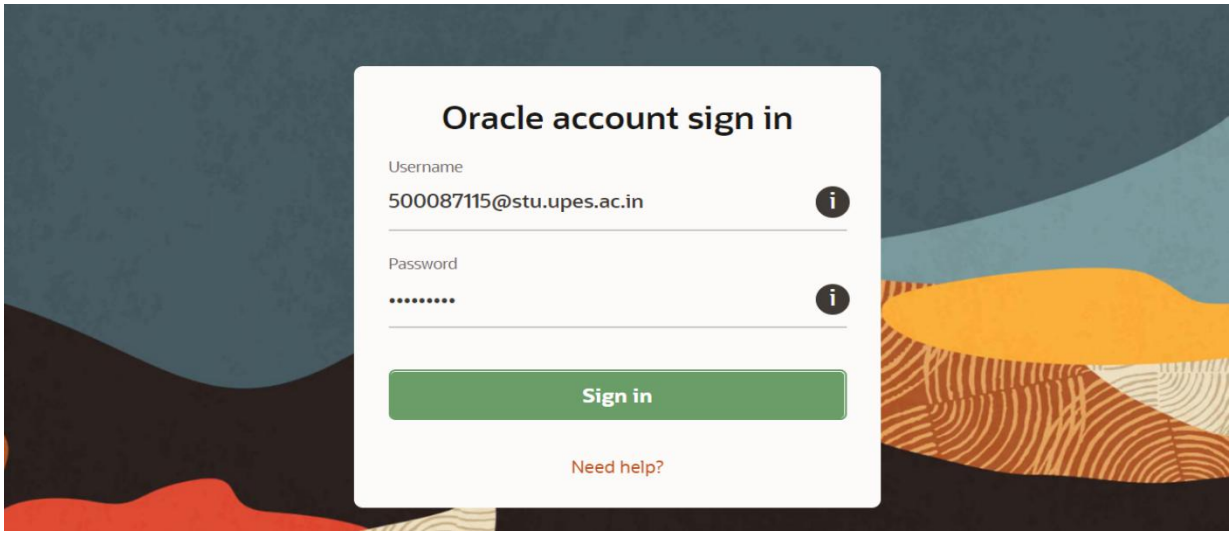
1. Create an Oracle Single Sign on using your university email ID and submit the profile page of your as the output.

Oracle Account Profile :

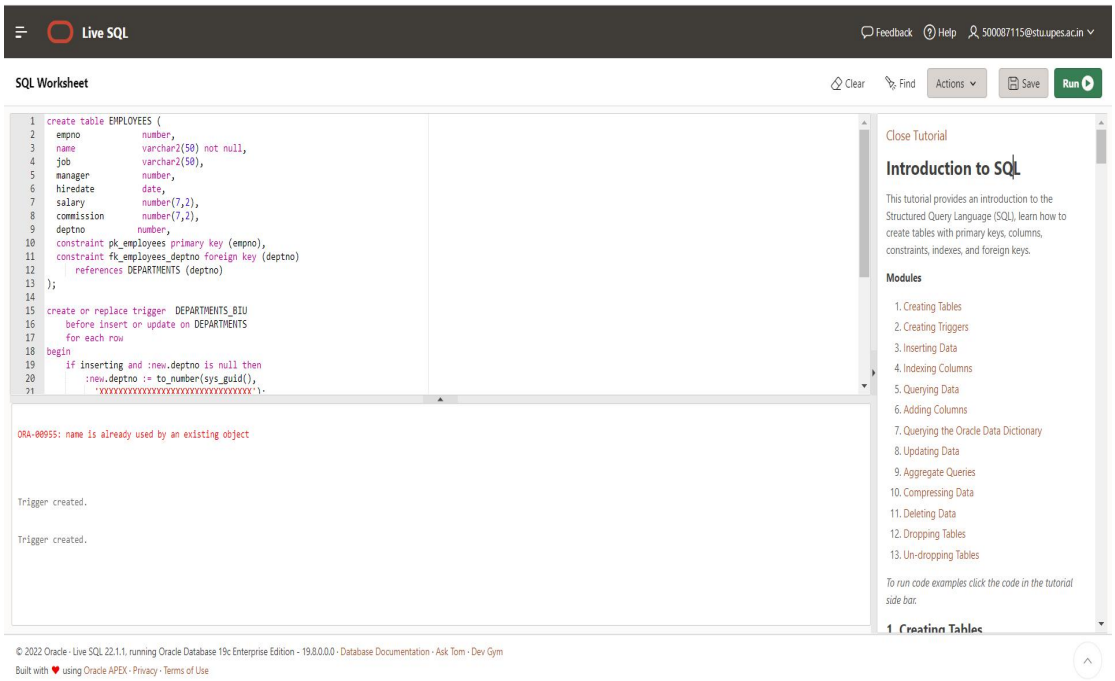


2. Learn to login and browse on the feature of SQL on an Oracle Database using Oracle LiveSQL. Provide a snapshot with your Live SQL login and Introduction to SQL tutorial in Live SQL.

Live SQL Account Login/Sign-in :

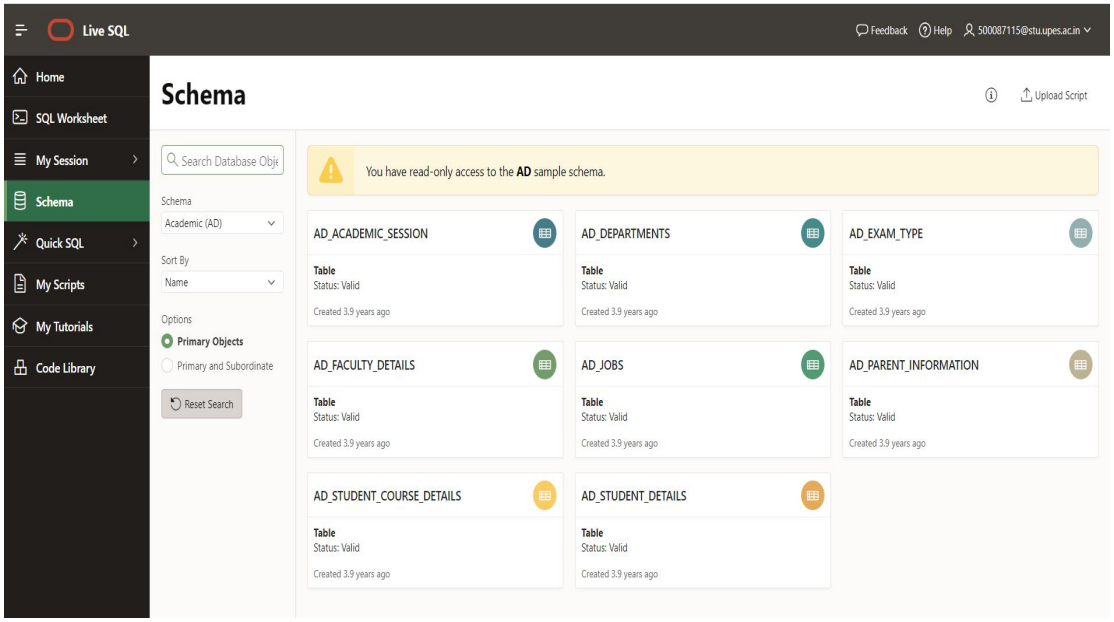


Introduction to SQL :

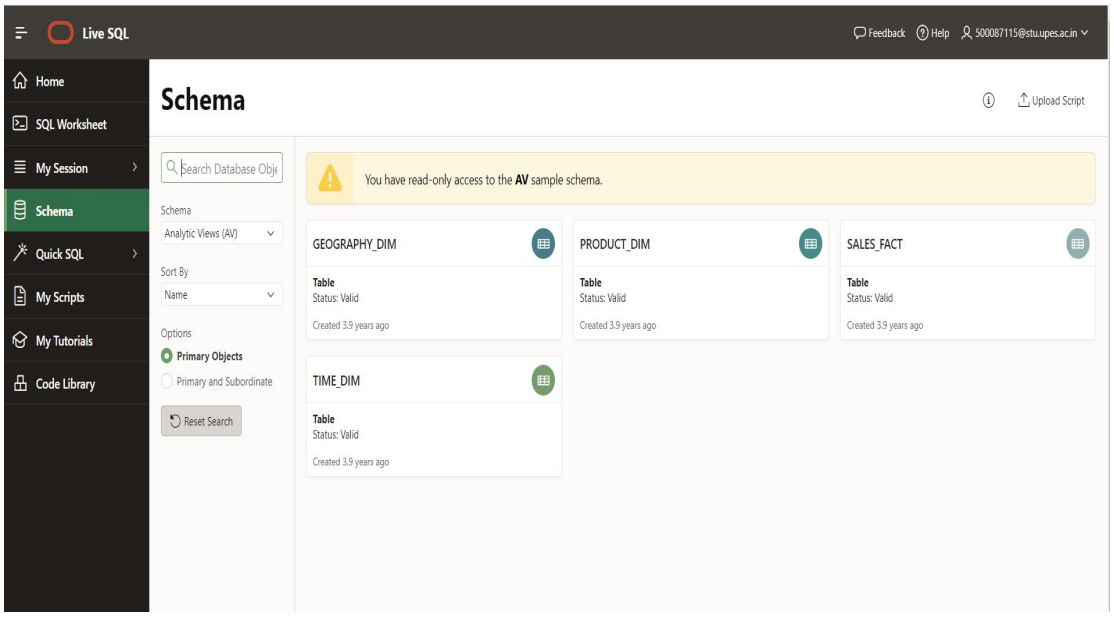


3. Provide a structure of the any three Schema available as read only.

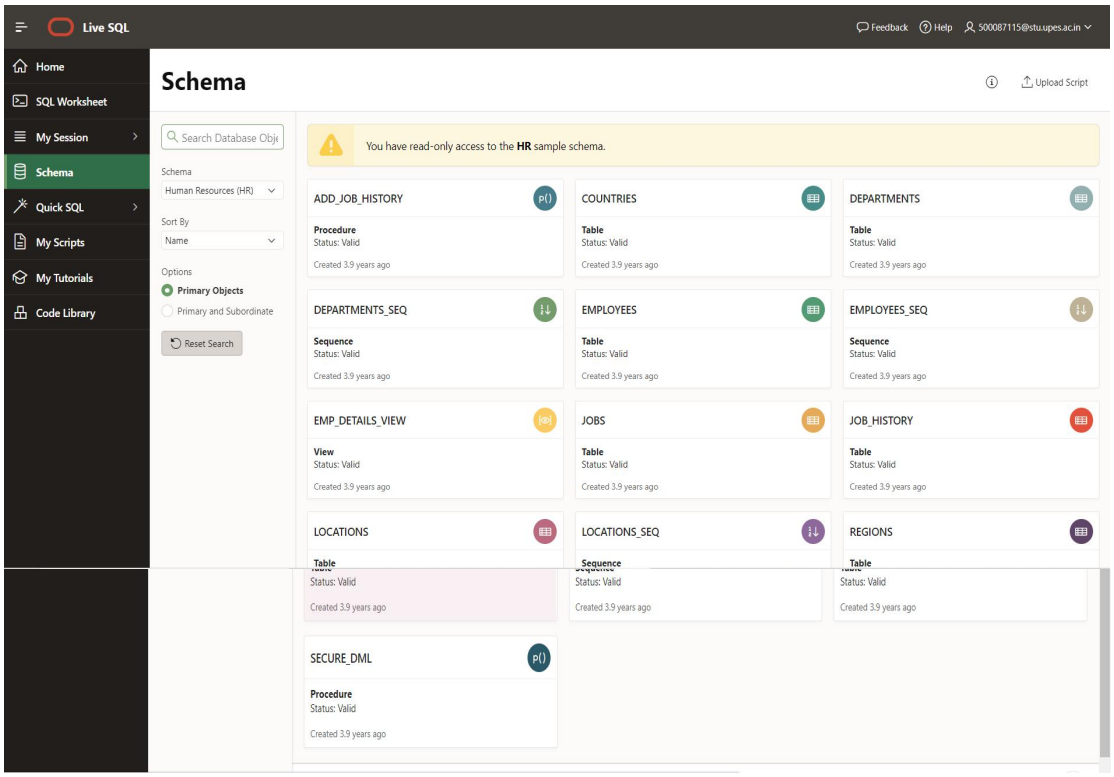
{Academic (AD)}



{Analytic Views (AV)}



{Human Resources (HR)}



4. List any 5 database in the markets and its advantages and disadvantages.

- **MySQL :-**

Advantages of MySQL:

1. A free version is available
2. A number of functionalities are available even for the database engine that is free
3. The wide range of user interfaces that can be used
4. Ease of integration with a number of databases, including Oracle and DB2
5. Well-suited for organizations looking for a robust database management tool at affordable prices

Drawbacks of MySQL:

1. No in-built support for OLAP or XML
2. Though support is available for the free version, it does not come for free

3. The effort and time required to get MySQL to perform some activities, such as creating incremental backups are much more when compared with other systems

- **PostgreSQL :-**

Advantages of PostgreSQL:

1. Support to JSON
2. Availability of numerous interface.
3. The saleable database management engine
4. Possible to handle terabytes of data
5. Comes with a variety of predefined functions

Drawbacks of PostgreSQL:

1. The documentation part is weak, which means if you get stuck with your project, it might not be easy to figure out how to come out of it.
2. Speed can be affected while reading queries or when the load is too heavy
3. Configuration part might be a challenge

- **SAP HANA :-**

Advantages of SAP HANA:

1. Resource requirements are minimized via compression
2. It has the ability to interface with a variety of apps
3. It can be used or integrated with OLAP, SQL, and even OLTP
4. Access times can be brought down as it allows access to data stored within memory
5. You have the provision for inventory management and real-time reporting
6. If you do not have budget restrictions and would like to pull data from apps, then SAP HANA is the best bet

Drawbacks of SAP HANA:

1. The patches and updates are brought about frequently as it is new in the field
2. SAP HANA comes with a higher licensing cost

- **Mongo DB :-**

Advantages of Mongo DB:

1. No or lesser downtime required for writing the schema
2. Easy and quickly storable data, regardless of whether it is structured or unstructured
3. Fast, easy and simple to use
4. With this engine, integrating with JSON and other NoSQL documents is easier

Drawbacks of Mongo DB:

1. Setting up would take a longer time when compared with other systems
2. Insecurities could be detected across default settings
3. Though there are tools for translating SQL to Mongo DB queries, these would make the process further complicated
4. Here, the query language is not SQL

- **Microsoft SQL Server :-**

Advantages of Microsoft SQL:

1. Server: Blends well with all kinds of Microsoft products
2. Visualizations can be accessed on mobile devices
3. Faster and stable
4. It is possible for the engine to adjust and track performance level, reducing resource usage

Drawbacks of Microsoft SQL Server:

1. The enterprise pricing is far from what the organizations are capable of bearing
2. If people are not experts with Microsoft SQL server, then importing files using SQL server integration services would be a challenge

5. Find out and Draw the version history of Oracle Database.

Oracle is the most extensively utilised Database Management System in the majority of businesses. Oracle uses SQL pronounced as ‘Sequel’ language to data manipulation and operations on data.
'SEQUEL' stands for 'Structured English Query Language,' and it was created in 1979 by IBM Corporation Limited to use Codd's model. Oracle released the first commercially available SQL implementation in 1979. SQL is now known as the Standard RDBMS language. In 1977, two computer programmers, Larry Ellison and Bob Miner, founded Oracle Corporation. Larry and Bob have both previously worked on database applications for other firms. Their initial goal was to create a CIA-specific database application (Central Intelligence Agency).

Larry Erison is the father of Oracle, having founded the business Software Development Laboratory in 1977. This company is currently known as the 'Oracle Corporation.'

Different Versions Of Oracle:

- In 1977, SEL (Software Development Laboratory) … V1
- In 1979, RSI (Relational S/W Incorporation) …. V2
- In 1983, Oracle Corporation à Oracle 3 [Developed Using ‘C’, which supports simple queries but does not support transactions]
- In 1984, Oracle 4 Supports Transactions [Commit/Rollback]
- In 1985, Oracle 5 Client-Server Architecture [Only install DB in Server, so that ‘N’ no of Clients can connect is known as Client-Server Architecture].
- In 1989, Oracle 6 PL/SQL
- In 1992, Oracle 7 Supports DWH [OLAP-Online Analytical Processing]
- In 1997, Oracle 8 ORDMBS
- In 1999, Oracle 8i ‘I’ means Internet & it has inbuilt JVM (JAVA Virtual Machine)
- In 2001, Oracle 9i with 400 New features, e.g. XML (X tended Markup Language), RAC (Real Application Clusters) etc which provided high availability & performance.
- In 2003, Oracle 10g ‘g’ means grid (group of DB Servers)
- In 2006, Oracle 11g we can add columns with values etc.

- In July 2014 Oracle 12 C is launched which means oracle with Cloud.
- In Feb 2018 Oracle 18 C is launched which is worlds first autonomous database

(SQL-Experiment 2)

Procedure:

Step 1: Login to Oracle Live SQL by the given link https://livesql.oracle.com/

Step 2: Select one read only Schema from the list as per the sum of your number in your SAP ID For Example your SAPID is 50001111 = sum of the digits = 9 , so your have to select the read only schema with that no

Step 3: Start analyzing the tables inside the schema

1. Academic
2. Analytic View
3. Emp and Department
4. Human Resource
5. Olympic Data
6. Order Entry
7. Analytic View
8. Emp and Department
9. Human Resource

Step 4: Have a fixed notebook for SQL and draw the schema in your notebook as demonstrated in the video attached.

Analytic Views (AV)

-> Schema / Product - DIM

Table Attributes :

Table Name	PRODUCT_DIM
Status	VALID
Temporary	No
Nested	No
Owner	AV

Columns :

#	Column	Type	Length	Precision	Scale	Nullable	Semantics	Comment
1	DEPARTMENT_ID	Number	22			Yes		
2	DEPARTMENT_NAME	VARCHAR2	100			Yes	Byte	
3	CATEGORY_ID	Number	22			Yes		
4	CATEGORY_NAME	VARCHAR2	100			Yes	Byte	

Indexes : No indexes defined

Triggers :

No triggers defined

Constraints :

No constraints defined

- Schema / TIME_DIM

Table Attributes :

Table Name	TIME_DIM
Status	VALID
Temporary	No
Nested	No
Owner	AV

Columns :

#	Column	Type	Length	Precision	Scale	Nullable	Semantics	Comment
1	YEAR_ID	VARCHAR2	30			Yes	Byte	
2	YEAR_NAME	VARCHAR2	40			Yes	Byte	
3	YEAR_END_DATE	DATE	7			Yes		
4	QUARTER_ID	VARCHAR2	30			Yes	Byte	
5	QUARTER_NAME	VARCHAR2	40			Yes	Byte	
6	QUARTER_OF_YEAR	NUMBER	22			Yes		
7	MONTH_ID	VARCHAR2	30			Yes	Byte	
8	MONTH_NAME	VARCHAR2	40			Yes	Byte	
9	MONTH_END_DATE	DATE	7			Yes		
10	MONTH_OF_YEAR	NUMBER	22			Yes		
11	MONTH_LONG_NAME	VARCHAR2	30			Yes	Byte	
12	SEASON	VARCHAR2	10			Yes	Byte	
13	SEASON_ORDER	NUMBER	22			Yes		
14	MONTH_OF_QUARTER	NUMBER	22			Yes		

Indexes : No indexes defined

Triggers : No triggers defined

Constraints : No constraints defined