Assignment-3

Student Name	Chathushi Jayarathna
Unit Number and Title	ACWD Module 4 – Database Design & Implementation
Academic Year	2022/23
Unit Assessor	Mrs. Arvinder Kaur
Project Title	Implement a Database Design for Community Portal
Issue Date	27/07/2022
Submission Date	03/08/2022
Internal Verifier Name	

Learner declaration
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged. Student signature: Chathushi Date: 03/08/2022

Submission Format

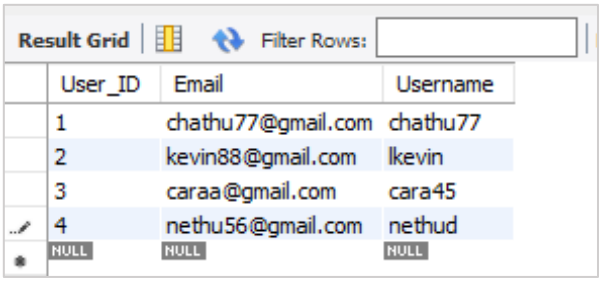
1. Screen Capture of Sample Data for Report
2. Queries for generating reports from database
3. Detailed Description of Test Methods
4. Documentation of database

The scope of this assignment

a. Create test data for all tables suitable for generating reports
b. Design report and create queries which will be used for generation of meaningful management reports. Present the report in HTML format (1 report)
c. Discuss briefly test methods you will employ to test and validate the database and brief reason why choose each test
d. Document database
e. Create a batch script to backup database & schedule it to run every 6 hours using windows task scheduler. Provide the script, along with the screen capture of Windows Task Scheduler
f. Provide a Restoration script in case of failure

A. Create test data for all tables suitable for generating reports

Table	CP_User



User_ID	Email	Username
1	chathu77@gmail.com	chathu77
2	kevin88@gmail.com	lkevin
3	caraa@gmail.com	cara45
4	nethu56@gmail.com	nethud
NULL	NULL	NULL

SQL Query

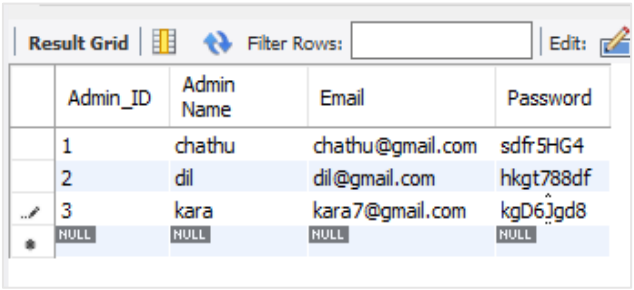
```
INSERT INTO `abc_community_portal`.`cp_user` (`User_ID`, `Email`, `Username`) VALUES ('1', 'chathu77@gmail.com', 'chathu77');

INSERT INTO `abc_community_portal`.`cp_user` (`User_ID`, `Email`, `Username`) VALUES ('2', 'kevin88@gmail.com', 'lkevin');

INSERT INTO `abc_community_portal`.`cp_user` (`User_ID`, `Email`, `Username`) VALUES ('3', 'caraa@gmail.com', 'cara45');

INSERT INTO `abc_community_portal`.`cp_user` (`User_ID`, `Email`, `Username`) VALUES ('4', 'nethu56@gmail.com', 'nethud');
```

Table	CP_Admin



Admin_ID	Admin Name	Email	Password
1	chathu	chathu@gmail.com	sdfr5HG4
2	dil	dil@gmail.com	hkgt788df
3	kara	kara7@gmail.com	kgD6Jgd8
NULL	NULL	NULL	NULL

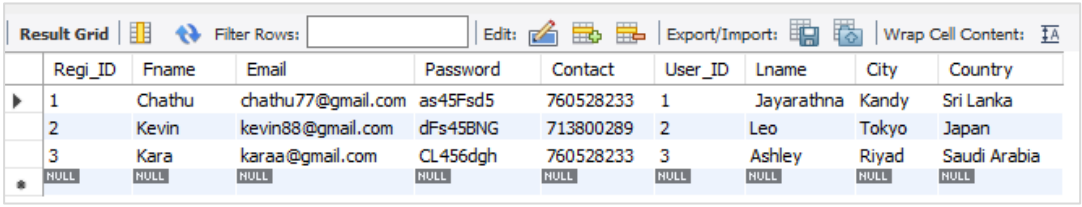
SQL Query

```
INSERT INTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`) VALUES ('1', 'chathu', 'chathu@gmail.com', 'sdfr5HG4');

INSERT INTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`) VALUES ('2', 'dil', 'dil@gmail.com', 'hkgt788df');

INSERTINTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`) VALUES ('3', 'kara', 'kara7@gmail.com', 'kgD6Jgd8');
```

Table	CP_Account



Regi_ID	Fname	Email	Password	Contact	User_ID	Lname	City	Country
1	Chathu	chathu77@gmail.com	as45Fsd5	760528233	1	Jayarathna	Kandy	Sri Lanka
2	Kevin	kevin88@gmail.com	dFs45BNG	713800289	2	Leo	Tokyo	Japan
3	Kara	karaa@gmail.com	CL456dgh	760528233	3	Ashley	Riyad	Saudi Arabia
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

SQL Query

```
INSERT INTO `abc_community_portal`.`cp_account` (`Regi_ID`, `Fname`, `Email`, `Password`, `Contact`, `User_ID`, `Lname`, `City`, `Country`) VALUES ('1', 'Chathu', 'chathu77@gmail.com', 'as45Fsd5', '760528233', '1', ' Jayarathna', 'Kandy', 'Sri Lanka');

INSERT INTO `abc_community_portal`.`cp_account` (`Regi_ID`, `Fname`, `Email`, `Password`, `Contact`, `User_ID`, `Lname`, `City`, `Country`) VALUES ('2', 'Kevin ', 'kevin88@gmail.com', 'dFs45BNG', '713800289', '2', 'Leo', 'Tokyo', 'Japan');
```

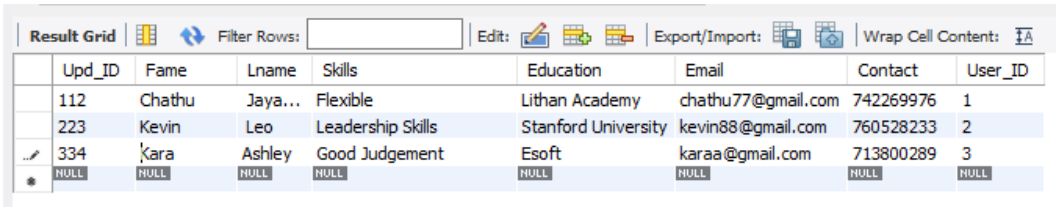
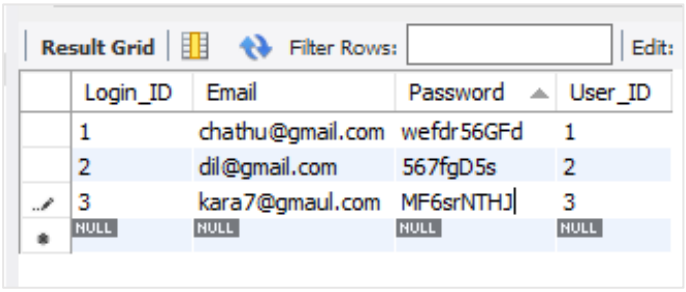
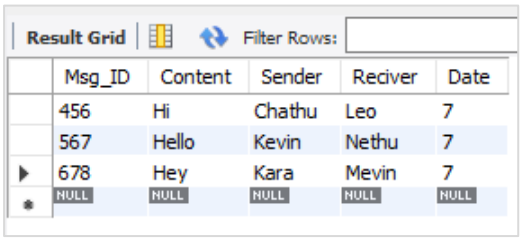
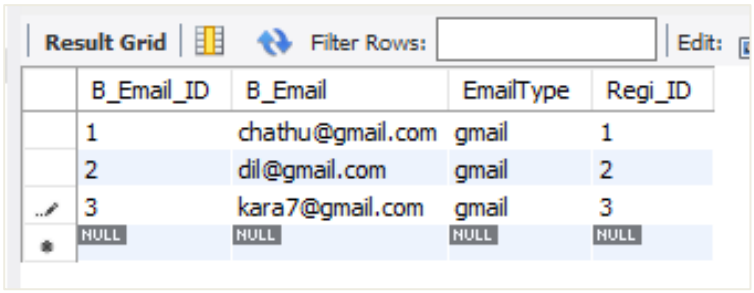
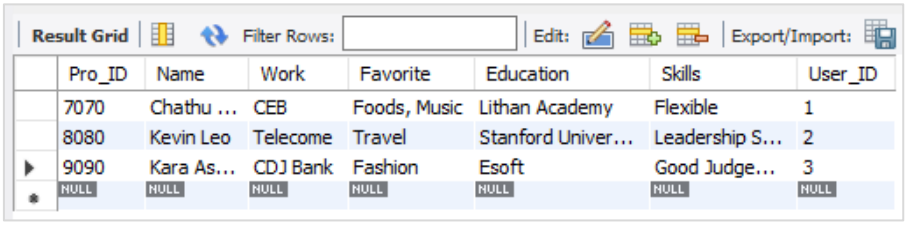
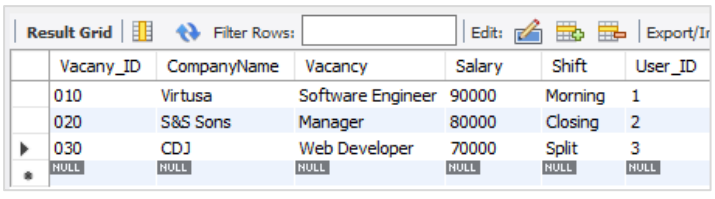
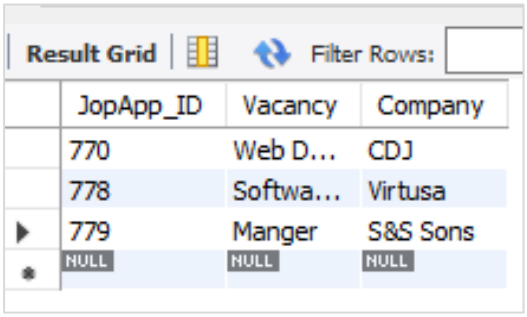
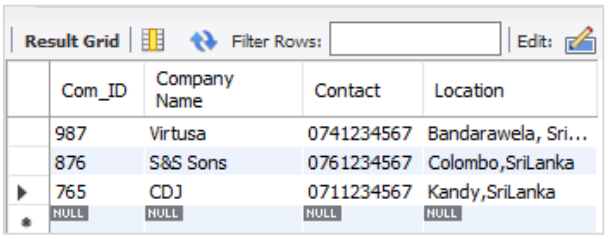
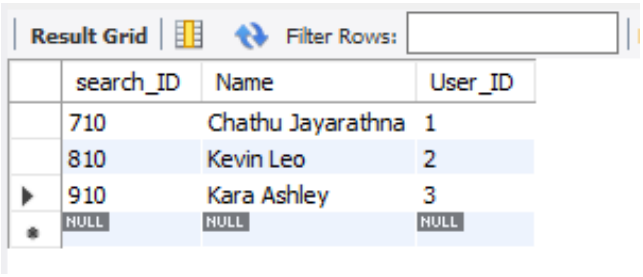
	INSERT INTO `abc_community_portal`.`cp_account` (`Regi_ID`, `Fname`, `Email`, `Password`, `Contact`, `User_ID`, `Lname`, `City`, `Country`) VALUES ('3', 'Kara ', 'karaa@gmail.com', 'CL456dgh', '760528233', '3', 'Ashley', 'Riyad', 'Saudi Arabia');
Table	**CP_Update Profile**  Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: Upd_ID | Fame | Lname | Skills | Education | Email | Contact | User_ID 112 | Chathu | Jaya... | Flexible | Lithan Academy | chathu77@gmail.com | 742269976 | 1 223 | Kevin | Leo | Leadership Skills | Stanford University | kevin88@gmail.com | 760528233 | 2 334 | Kara | Ashley | Good Judgement | Esoft | karaa@gmail.com | 713800289 | 3 NULL …
SQL Query	INSERTINTO `abc_community_portal`.`cp_updateprofile` (`Upd_ID`, `Name`, `Skills`, `Education`, `Contact`, `User_ID`) VALUES ('1', 'chathu', 'Flexible', 'Lithan Academy', '0742269976', '1'); INSERTINTO `abc_community_portal`.`cp_updateprofile` (`Upd_ID`, `Name`, `Skills`, `Education`, `Contact`, `User_ID`) VALUES ('2', 'Dil', 'Good Judgment', 'Stanford University', '0760528233', '2'); INSERTINTO `abc_community_portal`.`cp_updateprofile` (`Upd_ID`, `Name`, `Skills`, `Education`, `Contact`, `User_ID`) VALUES ('3', 'Kara', 'Leadership skills, Honesty', 'Virtusa', '0713800289', '3');
Table	**CP_Login**  Result Grid | Filter Rows: | Edit: Login_ID | Email | Password | User_ID 1 | chathu@gmail.com | wefdr56GFd | 1 2 | dil@gmail.com | 567fgD5s | 2 3 | kara7@gmaul.com | MF6srNTHJ | 3 NULL …
SQL Query	INSERT INTO `abc_community_portal`.`cp_login` (`Login_ID`, `Email`, `Password`, `User_ID`) VALUES ('1', 'chathu@gmail.com', 'wefdr56GFd', '1'); INSERT INTO `abc_community_portal`.`cp_login` (`Login_ID`, `Email`, `Password`, `User_ID`) VALUES ('2', 'dil@gmail.com', '567fgD5s', '2'); INSERTINTO `abc_community_portal`.`cp_login` (`Login_ID`, `Email`, `Password`, `User_ID`) VALUES ('3', 'kara7@gmaul.com', 'MF6srNTHJ', '3');
Table	**CP_SendMessage**  Result Grid | Filter Rows: Msg_ID | Content | Sender | Reciver | Date 456 | Hi | Chathu | Leo | 7 567 | Hello | Kevin | Nethu | 7 678 | Hey | Kara | Mevin | 7 NULL …
SQL Query	INSERT INTO `abc_community_portal`.`cp_message` (`Msg_ID`, `Content`, `Sender`, `Reciver`, `Date`) VALUES ('456', 'Hi', 'Chathu', 'Leo', '7/8'); INSERT INTO `abc_community_portal`.`cp_message` (`Msg_ID`, `Content`, `Sender`, `Reciver`, `Date`) VALUES ('567', 'Hello', 'Kevin', 'Nethu', '7/9'); INSERT INTO `abc_community_portal`.`cp_message` (`Msg_ID`, `Content`, `Sender`, `Reciver`, `Date`) VALUES ('678', 'Hey', 'Kara', 'Mevin', '7/10');

Table	**CP_BulkEmail**  Result Grid | Filter Rows: | Edit: B_Email_ID | B_Email | EmailType | Regi_ID 1 | chathu@gmail.com | gmail | 1 2 | dil@gmail.com | gmail | 2 3 | kara7@gmail.com | gmail | 3 NULL | NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_bulkemail` (`B_Email_ID`, `B_Email`, `EmailType`, `Regi_ID`) VALUES ('1', 'chathu@gmail.com', 'gmail', '1'); INSERT INTO `abc_community_portal`.`cp_bulkemail` (`B_Email_ID`, `B_Email`, `EmailType`, `Regi_ID`) VALUES ('2', 'dil@gmail.com', 'gmail', '2'); INSERT INTO `abc_community_portal`.`cp_bulkemail` (`B_Email_ID`, `B_Email`, `EmailType`, `Regi_ID`) VALUES ('3', 'kara7@gmail.com', 'gmail', '3');
Table	**CP_PublicProfile**  Result Grid | Filter Rows: | Edit: | Export/Import: Pro_ID | Name | Work | Favorite | Education | Skills | User_ID 7070 | Chathu ... | CEB | Foods, Music | Lithan Academy | Flexible | 1 8080 | Kevin Leo | Telecome | Travel | Stanford Univer... | Leadership S... | 2 9090 | Kara As... | CDJ Bank | Fashion | Esoft | Good Judge... | 3 NULL | NULL | NULL | NULL | NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_publicprofile` (`Pro_ID`, `Name`, `Work`, `Favorite`, `Education`, `Skills`, `User_ID`) VALUES ('7070', 'Chathu Jayarathna', 'CEB', 'Foods, Music', 'Lithan Academy', 'Flexible', '1'); INSERT INTO `abc_community_portal`.`cp_publicprofile` (`Pro_ID`, `Name`, `Work`, `Favorite`, `Education`, `Skills`, `User_ID`) VALUES ('8080', 'Kevin Leo', 'Telecome', 'Travel', 'Stanford University', 'Leadership Skills', '2'); INSERT INTO `abc_community_portal`.`cp_publicprofile` (`Pro_ID`, `Name`, `Work`, `Favorite`, `Education`, `Skills`, `User_ID`) VALUES ('9090', 'Kara Ashley', 'CDJ Bank', 'Fashion', 'Esoft', 'Good Judgement', '3');
Table	**CP_Job**  Result Grid | Filter Rows: | Edit: | Export/Ir Vacany_ID | CompanyName | Vacancy | Salary | Shift | User_ID 010 | Virtusa | Software Engineer | 90000 | Morning | 1 020 | S&S Sons | Manager | 80000 | Closing | 2 030 | CDJ | Web Developer | 70000 | Split | 3 NULL | NULL | NULL | NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_job` (`Vacany_ID`, `CompanyName`, `Vacancy`, `Salary`, `Shift`, `User_ID`) VALUES ('010', 'Virtusa', 'Software Engineer', '90000', 'Morning', '1'); INSERT INTO `abc_community_portal`.`cp_job` (`Vacany_ID`, `CompanyName`, `Vacancy`, `Salary`, `Shift`, `User_ID`) VALUES ('020', 'S&S Sons', 'Manager', '80000', 'Closing', '2'); INSERT INTO `abc_community_portal`.`cp_job` (`Vacany_ID`, `CompanyName`, `Vacancy`, `Salary`, `Shift`, `User_ID`) VALUES ('030', 'CDJ', 'Web Developer', '70000',

	'Split', '3');
Table	**CP_JobApply**  Result Grid Filter Rows: JopApp_ID | Vacancy | Company 770 | Web D... | CDJ 778 | Softwa... | Virtusa 779 | Manger | S&S Sons NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_jobapply` (`JopApp_ID`, `Vacancy`, `Company`) VALUES ('778', 'Software Engineer', 'Virtusa'); INSERT INTO `abc_community_portal`.`cp_jobapply` (`JopApp_ID`, `Vacancy`, `Company`) VALUES ('779', 'Manger', 'S&S Sons'); INSERT INTO `abc_community_portal`.`cp_jobapply` (`JopApp_ID`, `Vacancy`, `Company`) VALUES ('770', 'Web Developer', 'CDJ');
Table	**CP_Company**  Result Grid Filter Rows: Edit: Com_ID | Company Name | Contact | Location 987 | Virtusa | 0741234567 | Bandarawela, Sri... 876 | S&S Sons | 0761234567 | Colombo,SriLanka 765 | CDJ | 0711234567 | Kandy,SriLanka NULL | NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_company` (`Com_ID`, `Company Name`, `Contact`, `Location`) VALUES ('987', 'Virtusa', '0741234567', 'Bandarawela, SriLanka'); INSERT INTO `abc_community_portal`.`cp_company` (`Com_ID`, `Company Name`, `Contact`, `Location`) VALUES ('876', 'S&S Sons', '0761234567', 'Colombo,SriLanka'); INSERT INTO `abc_community_portal`.`cp_company` (`Com_ID`, `Company Name`, `Contact`, `Location`) VALUES ('765', 'CDJ', '0711234567', 'Kandy,SriLanka');
Table	**CP_SearchUser**  Result Grid Filter Rows: search_ID | Name | User_ID 710 | Chathu Jayarathna | 1 810 | Kevin Leo | 2 910 | Kara Ashley | 3 NULL | NULL | NULL
SQL Query	INSERT INTO `abc_community_portal`.`cp_searchuser` (`search_ID`, `Name`, `User_ID`) VALUES ('710', 'Chathu Jayarathna', '1'); INSERT INTO `abc_community_portal`.`cp_searchuser` (`search_ID`, `Name`, `User_ID`) VALUES ('810', 'Kevin Leo', '2');, INSERT INTO `abc_community_portal`.`cp_searchuser` (`search_ID`, `Name`, `User_ID`) VALUES ('910', 'Kara Ashley', '3');

B. Design reports and create queries which will be used for generation of meaningful management reports.

✓ CP_Account Table

No	Note	Query	Evidence
1	All users' personal details, to fetch users, contact info information	SELECT regi_id, CONCAT(Fname, ' ',Lname) AS name, Email, Contact, CONCAT(City, ', ',Country) AS Location FROM cp_account ORDER BY name;	**T01**

T01

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

regi_id	name	Email	Contact	Location
1	Chathu Jayarathna	chathu77@gmail.com	760528233	Kandy, Sri Lanka
3	Kara Ashley	karaa@gmail.com	760528233	Riyad, Saudi Arabia
2	Kevin Leo	kevin88@gmail.com	713800289	Tokyo, Japan

✓ CP_UpdateProfile

No	Note	Query	Evidence
2	All users Update Profile personal details, To fetch users, contact info information	SELECT Upd_ID, CONCAT(Fname, ' ',Lname) AS name, Skills, Education, CONCAT(Email, ', ',Contact) AS Contact FROM cp_updateprofile ORDER BY name;	**T02**

T02

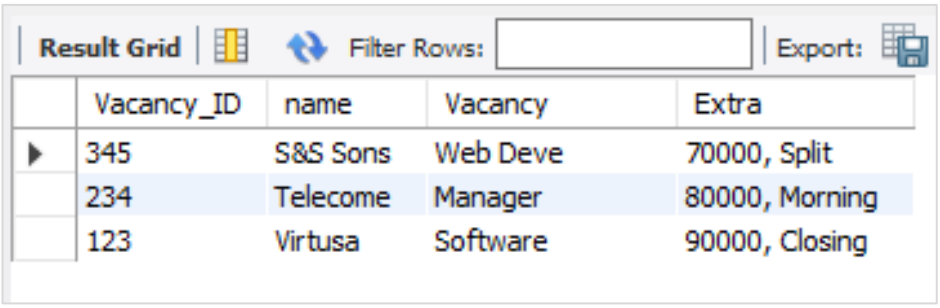
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Upd_ID	name	Skills	Education	Contact
112	Chathu Jayarathna	Flexible	Lithan Academy	chathu77@gmail.com, 742269976
334	Kara Ashley	Good Judgement	Esoft	karaa@gmail.com, 713800289
223	Kevin Leo	Leadership Skills	Stanford University	kevin88@gmail.com, 760528233

✓ CP_Job

No	Note	Query	Evidence
3	All Jobs Details, To fetch jobs, contact info information	SELECT Vacancy_ID, CONCAT(CompanyName) AS name, Vacancy, CONCAT(Salary, ', ',Shift) AS Extra FROM cp_job ORDER BY name;	T03

T03



Result Grid | Filter Rows: | Export:

Vacancy_ID	name	Vacancy	Extra
345	S&S Sons	Web Deve	70000, Split
234	Telecome	Manager	80000, Morning
123	Virtusa	Software	90000, Closing

C. Discuss briefly test methods you will employ to test and validate the database and brief reason why choose each test

1. Structural Database Testing

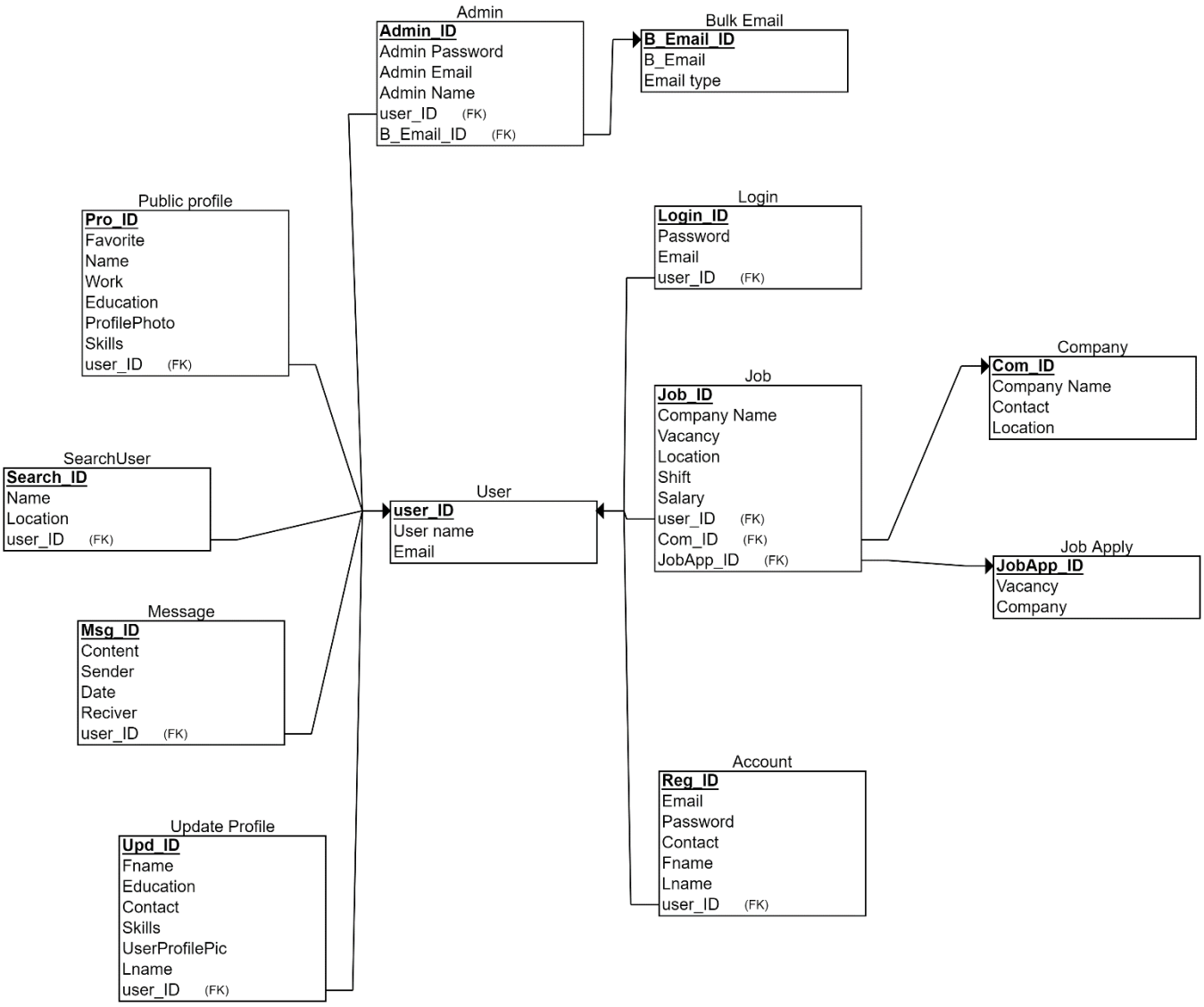
✓ **Schema Testing.**

Schema or database testing is vital in ensuring the validity of data received and stored into database.

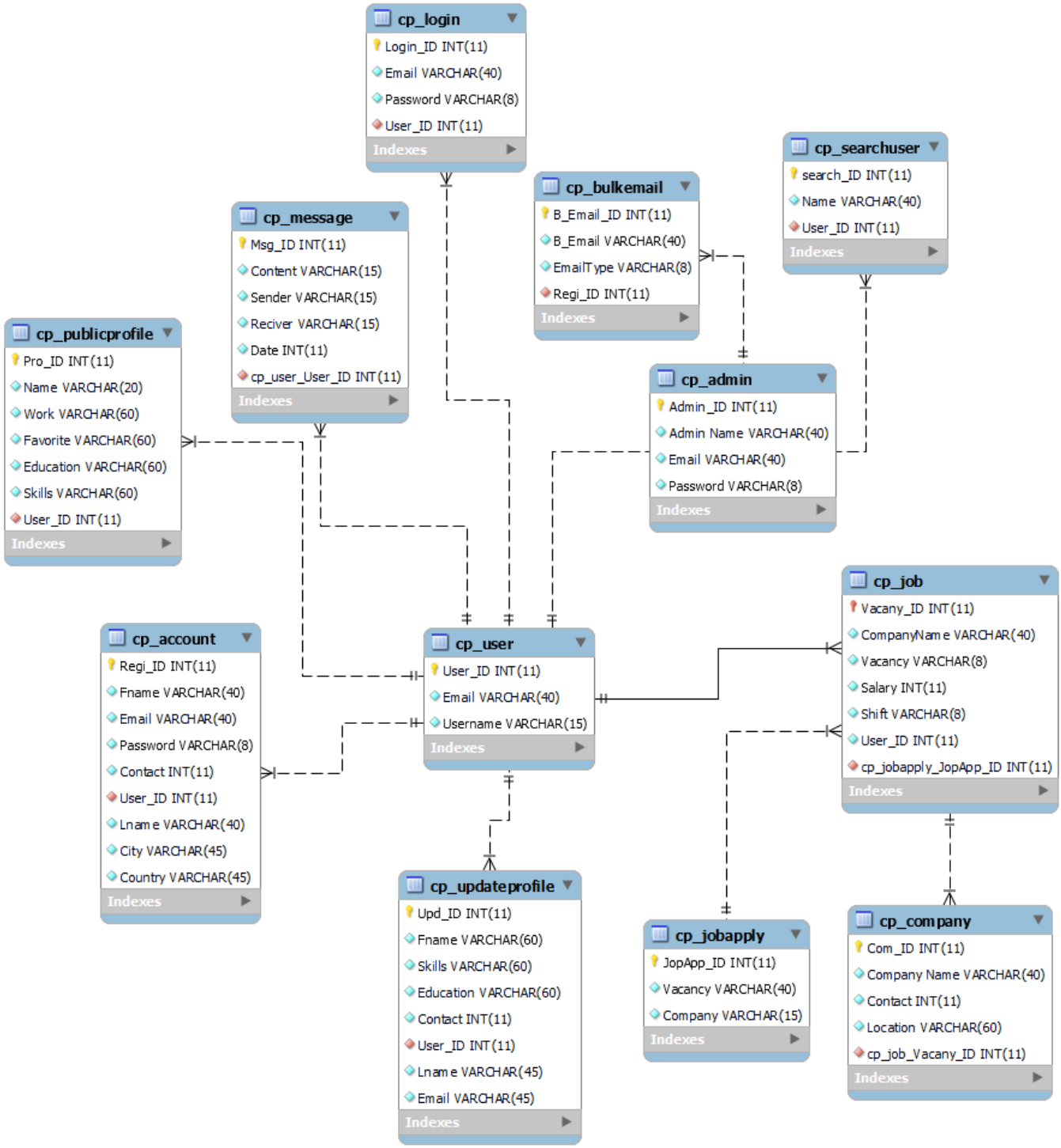
No. / Test Cases	Expected Result	Actual Result	Test Result	Evidence
1. Schema Testing: Ensure that Relationship Schema and EER Diagram is the same in terms of (table name, attributes, primary key and foreign key)	Both Relationship schema and EER diagram should have similar field of: table name, attributes, primary key and foreign key	Both Relationship schema and EER diagram is the same in terms of (table name, attributes, primary key and foreign key)	Pass	Screen capture of logical design and physical design (EERD)

Evidence:

✓ **Relationship Schema**


Admin
Admin_ID
Admin Password
Admin Email
Admin Name
user_ID (FK)
B_Email_ID (FK)
Bulk Email
B_Email_ID
B_Email
Email type
Public profile
Pro_ID
Favorite
Name
Work
Education
ProfilePhoto
Skills
user_ID (FK)
Login
Login_ID
Password
Email
user_ID (FK)
Company
Com_ID
Company Name
Contact
Location
Job
Job_ID
Company Name
Vacancy
Location
Shift
Salary
user_ID (FK)
Com_ID (FK)
JobApp_ID (FK)
SearchUser
Search_ID
Name
Location
user_ID (FK)
User
user_ID
User name
Email
Job Apply
JobApp_ID
Vacancy
Company
Message
Msg_ID
Content
Sender
Date
Reciver
user_ID (FK)
Account
Reg_ID
Email
Password
Contact
Fname
Lname
user_ID (FK)
Update Profile
Upd_ID
Fname
Education
Contact
Skills
UserProfilePic
Lname
user_ID (FK)

✓ EER Diagram


cp_login
Login_ID INT(11)
Email VARCHAR(40)
Password VARCHAR(8)
User_ID INT(11)
Indexes
cp_searchuser
search_ID INT(11)
Name VARCHAR(40)
User_ID INT(11)
Indexes
cp_bulkemail
B_Email_ID INT(11)
B_Email VARCHAR(40)
EmailType VARCHAR(8)
Regi_ID INT(11)
Indexes
cp_message
Msg_ID INT(11)
Content VARCHAR(15)
Sender VARCHAR(15)
Reciver VARCHAR(15)
Date INT(11)
cp_user_User_ID INT(11)
Indexes
cp_publicprofile
Pro_ID INT(11)
Name VARCHAR(20)
Work VARCHAR(60)
Favorite VARCHAR(60)
Education VARCHAR(60)
Skills VARCHAR(60)
User_ID INT(11)
Indexes
cp_admin
Admin_ID INT(11)
Admin Name VARCHAR(40)
Email VARCHAR(40)
Password VARCHAR(8)
Indexes
cp_job
Vacany_ID INT(11)
CompanyName VARCHAR(40)
Vacancy VARCHAR(8)
Salary INT(11)
Shift VARCHAR(8)
User_ID INT(11)
cp_jobapply_JopApp_ID INT(11)
Indexes
cp_account
Regi_ID INT(11)
Fname VARCHAR(40)
Email VARCHAR(40)
Password VARCHAR(8)
Contact INT(11)
User_ID INT(11)
Lname VARCHAR(40)
City VARCHAR(45)
Country VARCHAR(45)
Indexes
cp_user
User_ID INT(11)
Email VARCHAR(40)
Username VARCHAR(15)
Indexes
cp_updateprofile
Upd_ID INT(11)
Fname VARCHAR(60)
Skills VARCHAR(60)
Education VARCHAR(60)
Contact INT(11)
User_ID INT(11)
Lname VARCHAR(45)
Email VARCHAR(45)
Indexes
cp_jobapply
JopApp_ID INT(11)
Vacancy VARCHAR(40)
Company VARCHAR(15)
Indexes
cp_company
Com_ID INT(11)
Company Name VARCHAR(40)
Contact INT(11)
Location VARCHAR(60)
cp_job_Vacany_ID INT(11)
Indexes

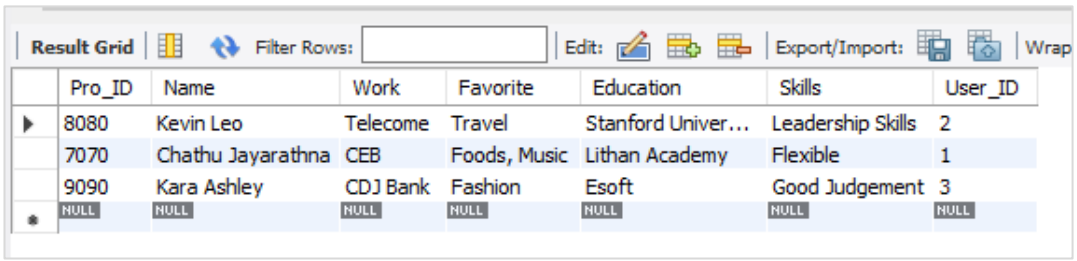
a. Table/column testing.

Every transaction or sequence of operations performed using SQL statement must conform to the ACID properties validation..

Table/columns testing

Test Case ID	Test case	Expected result	Actual result	Pass / Fail	Evidence
TCO1	Foreign Key testing: Add & Update a child row	Data should be successfully insert into the table.	Error message: Cannot add or update a child row because of the foreign key	Fail	TCO1 Figure
TCO2	Field Testing : Insert duplicate details for the 'Regi_ID" in Bulk Mail Table	An error message should be appear	Error message appears because duplicate details insert to the table	Pass	TCO2 Figure
TC03	Is null syntax & Is not null syntax testing	Data should be null & not null	Error message appears because a duplicate value is inserted into primary key column	Pass	TCO3 Figure
TCO4	Primary Key testing: Insert duplicate value for primary key column for 'admin table	Error message should appear because duplicate value will be inserted into primary key column violating the rule	Error message appear because duplicate value is inserted into primary key column	Pass	TCO4 Figure

TC01 Figure:-



Pro_ID	Name	Work	Favorite	Education	Skills	User_ID
8080	Kevin Leo	Telecome	Travel	Stanford Univer...	Leadership Skills	2
7070	Chathu Jayarathna	CEB	Foods, Music	Lithan Academy	Flexible	1
9090	Kara Ashley	CDJ Bank	Fashion	Esoft	Good Judgement	3
NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
23  12:48:13  INSERT INTO `abc_community_portal`.`cp_job` (`Vacany_ID`, `CompanyName`, `Vacancy`, `Salary`, `Shift`, `User_I...
```

1452: Cannot add or update a child row: a foreign key constraint fails (`abc_community_portal`.`cp_job`, CONSTRAI...

TC02 Figure:-

```
163
164 •  SELECT * FROM cp_bulkemail;
165 •  INSERT INTO cp_bulkemail
166    (B_Email_ID, EmailType, Regi_ID)
167    VALUES
168    (50, gmail, 100);
169
170
```

Result Grid | Filter Rows: | Edit:

B_Email_ID	B_Email	EmailType	Regi_ID
11	chathu77@gmai...	gmail	1
22	kevin88@gmail....	gmail	2
33	karaa@gmail.com	gmail	3
NULL	NULL	NULL	NULL

```
32  14:31:32  INSERT INTO cp_bulkemail (B_Email_ID, EmailType, Regi_ID) VALUES (50, gmail, 100)
```

Error Code: 1054. Unknown column 'gmail' in 'field list'

TCO3 Figure: -

```
SELECT Contact, Fname
FROM cp_account
WHERE contact IS NULL;
SELECT contact, Fname
FROM cp_account
WHERE contact IS NOT NULL;
```

Result Grid | Filter Row

contact	Fname
760528233	Chathu
713800289	Kevin
760528233	Kara

```
39  14:50:49  SELECT Contact, Fname FROM cp_account WHERE contact IS NULL LIMIT 0, 1000   0 row(s) returned
40  14:50:49  SELECT contact, Fname FROM cp_account WHERE contact IS NOT NULL LIMIT 0, 1000   3 row(s) returned
```

TCO4 Figure: -

```
INSERT INTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`)
VALUES ('1', 'chathu', 'chathu@gmail.com', 'sdfr5HG4');
INSERT INTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`)
 VALUES ('1', 'kevin', 'kevin@gmail.com', '6ytry5HG4');
SELECT * FROM cp_admin
```

```
42  15:07:46  INSERT INTO `abc_community_portal`.`cp_admin` (`Admin_ID`, `Admin Name`, `Email`, `Password`) VALUES ('1', 'ch...  Error Code: 1062. Duplicate entry '1' for key 'PRIMARY'
```

2. Functional Database Testing

Functional database testing is to test whether data in the database can be access and updated by the users and applications. all CRUD

TestCase ID	Test Case	Expected Result	Actual Result	Test Result	Evidence
FC001	Insert data into the 'account' table	Data should be successfully insert into 'user' table.	Data is successfully inserted into the 'user' table	Pass	Figure 1
FC002	Update data in the "user" table	Data should successfully update into the 'user' table.	Date successfully updated into 'user' table	Pass	Figure 2
FC003	Select data from the 'user' table	Data should be successfully select from the 'user' table	Data successfully select from the 'user' table	Pass	Figure 3
FC004	Delete data from the 'account' table	Data should successfully delete from the 'account' table	There is a error	Fail	Figure 4

Evidence: -

Figure 1

```
INSERT INTO `abc_community_portal`.`cp_account` (`Regi_ID`, `Fname`, `Email`, `Password`, `Contact`, `User_ID`)
VALUES ('11', 'Chathu', 'chathu77@gmail.com', 'fgt5df4', '0742269976', '1');
```

```
2  14:22:55  SELECT * FROM abc_community_portal.cp_account LIMIT 0, 1000  0 row(s) returned
3  14:24:51  SELECT * FROM abc_community_portal.cp_user LIMIT 0, 1000  0 row(s) returned
4  14:25:48  INSERT INTO `abc_community_portal`.`cp_account` (`Regi_ID`, `Fname`, `Email`, `Password`, `Contact`, `User_ID`) V...  1 row(s) affected
```

Figure 2

```
132 •   UPDATE `abc_community_portal`.`cp_user`
133     SET `Email` = 'kevin8@gmail.com'
134     WHERE (`User_ID` = '2');
```

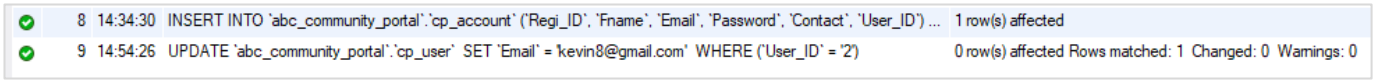


Figure 3

```
SELECT User_ID, Email, Username
FROM cp_user;
```

Figure 4

```
DELETE FROM cp_account WHERE Fname='Chathu';
```

3. Non-Functional Database

Non – functional specify on the quality of a database characteristics or attributes based on performance, capacity, data integrity, security and more. This requirement describes more on how the product works through testing like load, stress, security and others

a. Load Testing

Load testing test frequently accessed transactions impact on the database performance.

This testing involves simulating real-life cases when multiple users load simultaneously (Database Testing – Performance, n.d.) .

Test Plan

No	Test case	Note	Evidence
1	Auto-generate	Test performance of the device for simple test using auto generate from the mysqlslap with 50 users and 10 repetitions.	Load test 1
2	custom query from the auto generates	Test performance with custom query using schema from auto generate with 50 users and 10 repetitions.	Load test 2
3	Custom test using copy of the abc database	Test performance with custom query using copy schema abc with 50 users and 30 repetitions.	Load test 3

✓ Load test 1

Code	mysqlslap --user=root --password --host=localhost --auto-generate-sql --concurrency=50 --iterations=10 --verbose

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqlslap --user=root --password --host=localhost --auto-generate-sql --concurrency=50 --iterations=10 --verbose
Enter password: ***********
Benchmark
        Average number of seconds to run all queries: 2.896 seconds
        Minimum number of seconds to run all queries: 2.329 seconds
        Maximum number of seconds to run all queries: 3.641 seconds
        Number of clients running queries: 50
        Average number of queries per client: 0
```

✓ Load test 2

Code	mysqlslap --user=root --password --host=localhost --auto-generate-sql "DROP SCHERA mysqlsap;CREATE SCHEMA mysqlslap; CREATE TABLE tbl(b int); INSERT INTO tbl(b) VALUES (50); SELECT * FROM tbl;" --concurrency=50 --iterations=10 --verbose

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqlslap --user=root --password --host=localhost --auto-generate-sql "DROP SCHERA mysqlsap;CREATE SCHEMA mysqlslap; CREATE TABLE tbl(b int); INSERT INTO
 tbl(b) VALUES (50); SELECT * FROM tbl;" --concurrency=50 --iterations=10 --verbose
Enter password: ***********
Benchmark
        Average number of seconds to run all queries: 3.017 seconds
        Minimum number of seconds to run all queries: 2.297 seconds
        Maximum number of seconds to run all queries: 3.531 seconds
        Number of clients running queries: 50
        Average number of queries per client: 0
```

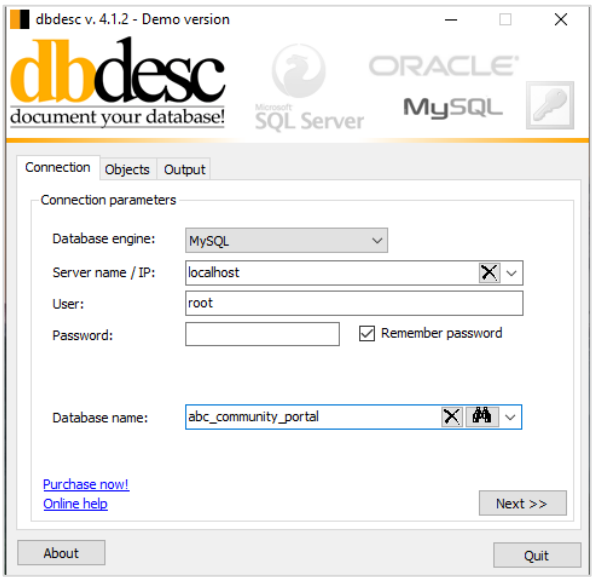
✓ Load test 3

Code	mysqlslap --user=root --password --host=localhost --create-schema=abc_community_portal --query="SELECT * FROM actor; SELECT * FROM city; "--delimitare--";" --concurrency=50 --iterations=10 --verbose

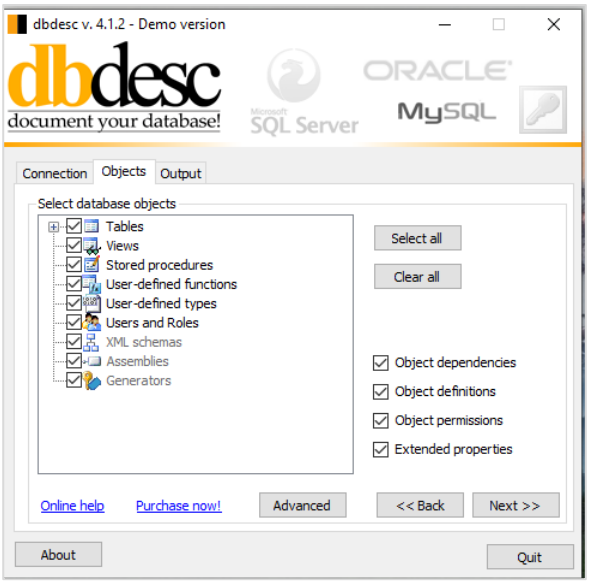
```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqlslap --user=root --password --host=localhost --create-schema=abc_community_portal --query="SELECT * FROM actor; SELECT * FROM city; "--delimitare--"
;" --concurrency=50 --iterations=10 --verbose
Enter password: ***********
mysqlslap: Error when connecting to server: 1049 Unknown database 'abc_community_portal'
Benchmark
        Average number of seconds to run all queries: 2.618 seconds
        Minimum number of seconds to run all queries: 2.234 seconds
        Maximum number of seconds to run all queries: 3.344 seconds
        Number of clients running queries: 50
        Average number of queries per client: 1
```

D. Document Database

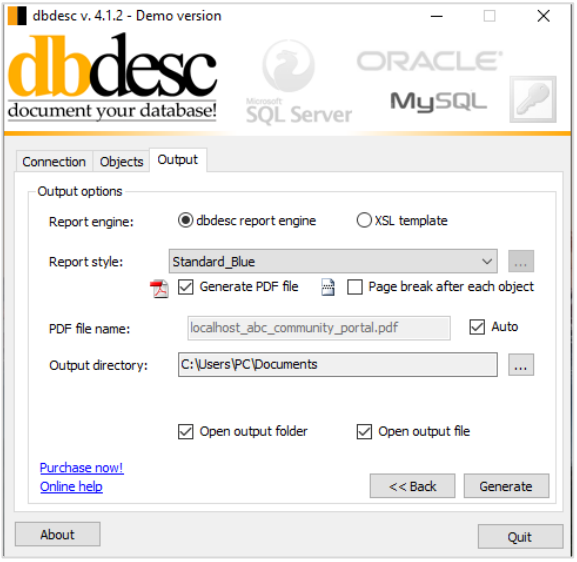
Step 1



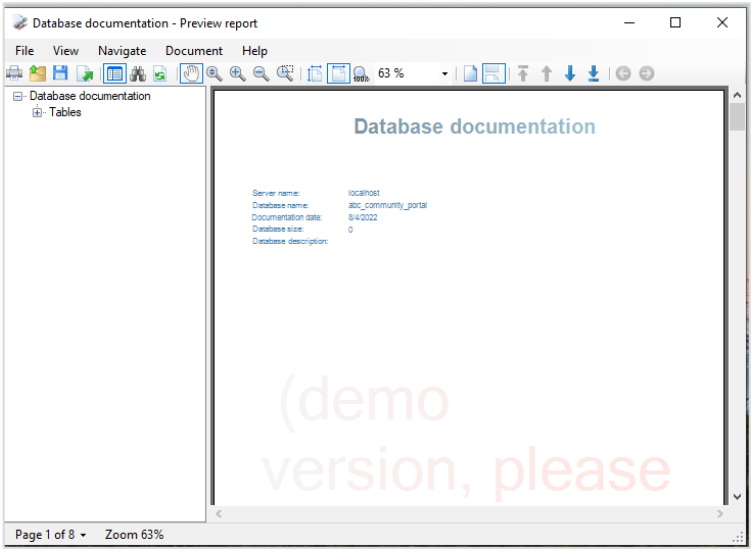
Step 2



Step 3



Step 4



Document Database PDF File

Database documentation.pdf

abc_community_portal database documentation - Tables

cp_account

I F P	Column name	Data type	Nulls	Default	Description
I	Regi_ID	int	NO		
	Fname	varchar (40)	NO		
	Email	varchar (40)	NO		
	Password	varchar (8)	NO		
	Contact	int	NO		
I F	User_ID	int	NO		
	Lname	varchar (40)	NO		
	City	varchar (45)	NO		
	Country	varchar (45)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Regi_ID	Ascending	Yes	BTREE
User_ID	User_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_account_ibfk_1	User_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_account` (
`Regi_ID` int(11) NOT NULL AUTO_INCREMENT,
`Fname` varchar(40) NOT NULL,
`Email` varchar(40) NOT NULL,
`Password` varchar(8) NOT NULL,
`Contact` int(11) NOT NULL,
 `User_ID` int(11) NOT NULL,
`Lname` varchar(40) NOT NULL,
`City` varchar(45) NOT NULL,
`Country` varchar(45) NOT NULL,
PRIMARY KEY (`Regi_ID`),
KEY `User_ID` (`User_ID`),
CONSTRAINT `cp_account_ibfk_1` FOREIGN KEY (`User_ID`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=5 DEFAULT CHARSET=utf8mb4
```

cp_admin

I F P	Column name	Data type	Nulls	Default	Description
I	Admin_ID	int	NO		
	Admin Name	varchar (40)	NO		
	Email	varchar (40)	NO		
	Password	varchar (8)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Admin_ID	Ascending	Yes	BTREE

Table definition

```
CREATE TABLE `cp_admin` (
```

```
`Admin_ID` int(11) NOT NULL AUTO_INCREMENT,
`Admin_Name` varchar(40) NOT NULL,
`Email` varchar(40) NOT NULL,
`Password` varchar(8) NOT NULL,
PRIMARY KEY (`Admin_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=4 DEFAULT CHARSET=utf8mb4
```

cp_bulkemail

I F P	Column name	Data type	Nulls	Default	Description
I	B_Email_ID	int	NO		
	B_Email	varchar (40)	NO		
	EmailType	varchar (8)	NO		
I F	Regi_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	B_Email_ID	Ascending	Yes	BTREE
Regi_ID	Regi_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_bulkemail_ibfk_1	Regi_ID	Admin_ID (cp_admin)	

Table definition

```
CREATE TABLE `cp_bulkemail` (
`B_Email_ID` int(11) NOT NULL AUTO_INCREMENT,
`B_Email` varchar(40) NOT NULL,
`EmailType` varchar(8) NOT NULL,
`Regi_ID` int(11) NOT NULL,
PRIMARY KEY (`B_Email_ID`),
KEY `Regi_ID` (`Regi_ID`),
CONSTRAINT `cp_bulkemail_ibfk_1` FOREIGN KEY (`Regi_ID`) REFERENCES `cp_admin` (`Admin_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=34 DEFAULT CHARSET=utf8mb4
```

cp_company

I F P	Column name	Data type	Nulls	Default	Description
I F	Com_ID	int	NO		
	Company Name	varchar (40)	NO		
	Contact	int	NO		
	Location	varchar (60)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Com_ID	Ascending	Yes	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
Vacancy_ID	Com_ID	Vacany_ID (cp_job)	

Table definition

```
CREATE TABLE `cp_company` (
`Com_ID` int(11) NOT NULL AUTO_INCREMENT,
`Company Name` varchar(40) NOT NULL,
```

```
`Contact` int(11) NOT NULL,
`Location` varchar(60) NOT NULL,
PRIMARY KEY (`Com_ID`),
CONSTRAINT `Vacancy_ID` FOREIGN KEY (`Com_ID`) REFERENCES `cp_job` (`Vacany_ID`) ON DELETE NO ACTION ON
UPDATE NO ACTION
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

cp_job

I F P	Column name	Data type	Nulls	Default	Description
PK FK	Vacany_ID	int	NO		
	CompanyName	varchar (40)	NO		
	Vacancy	varchar (8)	NO		
	Salary	int	NO		
	Shift	varchar (8)	NO		
	User_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Vacany_ID	Ascending	Yes	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
User_ID	Vacany_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_job` (
`Vacany_ID` int(11) NOT NULL AUTO_INCREMENT,
`CompanyName` varchar(40) NOT NULL,
`Vacancy` varchar(8) NOT NULL,
`Salary` int(11) NOT NULL,
`Shift` varchar(8) NOT NULL,
 `User_ID` int(11) NOT NULL,
PRIMARY KEY (`Vacany_ID`),
CONSTRAINT `User_ID` FOREIGN KEY (`Vacany_ID`) REFERENCES `cp_user` (`User_ID`) ON DELETE NO ACTION ON
UPDATE NO ACTION
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

cp_jobapply

I F P	Column name	Data type	Nulls	Default	Description
PK	JopApp_ID	int	NO		
	Vacancy	varchar (40)	NO		
	Company	varchar (15)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	JopApp_ID	Ascending	Yes	BTREE

Table definition

```
CREATE TABLE `cp_jobapply` (
`JopApp_ID` int(11) NOT NULL AUTO_INCREMENT,
`Vacancy` varchar(40) NOT NULL,
`Company` varchar(15) NOT NULL,
PRIMARY KEY (`JopApp_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

abc_community_portal database documentation - Tables

cp_login

I F P	Column name	Data type	Nulls	Default	Description
PK	Login_ID	int	NO		
	Email	varchar (40)	NO		
	Password	varchar (8)	NO		
PK FK	User_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Login_ID	Ascending	Yes	BTREE
User_ID	User_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_login_ibfk_1	User_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_login` (
`Login_ID` int(11) NOT NULL AUTO_INCREMENT,
`Email` varchar(40) NOT NULL,
`Password` varchar(8) NOT NULL,
 `User_ID` int(11) NOT NULL,
PRIMARY KEY (`Login_ID`),
KEY `User_ID` (`User_ID`),
CONSTRAINT `cp_login_ibfk_1` FOREIGN KEY (`User_ID`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=100 DEFAULT CHARSET=utf8mb4
```

cp_publicprofile

I F P	Column name	Data type	Nulls	Default	Description
PK	Pro_ID	int	NO		
	Name	varchar (20)	NO		
	Work	varchar (60)	NO		
	Favorite	varchar (60)	NO		
	Education	varchar (60)	NO		
	Skills	varchar (60)	NO		
PK FK	User_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Pro_ID	Ascending	Yes	BTREE
User_ID	User_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_publicprofile_ibfk_1	User_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_publicprofile` (
`Pro_ID` int(11) NOT NULL AUTO_INCREMENT,
`Name` varchar(20) NOT NULL,
```

```
  `Work` varchar(60) NOT NULL,
`Favorite` varchar(60) NOT NULL,
`Education` varchar(60) NOT NULL,
`Skills` varchar(60) NOT NULL,
  `User_ID` int(11) NOT NULL,
PRIMARY KEY (`Pro_ID`),
KEY `User_ID` (`User_ID`),
CONSTRAINT `cp_publicprofile_ibfk_1` FOREIGN KEY (`User_ID`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=9091 DEFAULT CHARSET=utf8mb4
```

cp_readmessage

I F P	Column name	Data type	Nulls	Default	Description
I F	Rmsg_ID	int	NO		
	Reciver	varchar (15)	NO		
	Content	varchar (65)	NO		
	Date	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Rmsg_ID	Ascending	Yes	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
Rmsg_ID	Rmsg_ID	Msg_ID (cp_sendmessage)	

Table definition

```
CREATE TABLE `cp_readmessage` (
`Rmsg_ID` int(11) NOT NULL AUTO_INCREMENT,
`Reciver` varchar(15) NOT NULL,
`Content` varchar(65) NOT NULL,
`Date` int(15) NOT NULL,
PRIMARY KEY (`Rmsg_ID`),
CONSTRAINT `Rmsg_ID` FOREIGN KEY (`Rmsg_ID`) REFERENCES `cp_sendmessage` (`Msg_ID`) ON DELETE NO ACTION
ON UPDATE NO ACTION
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

cp_searchuser

I F P	Column name	Data type	Nulls	Default	Description
I	search_ID	int	NO		
	Name	varchar (40)	NO		
I F	User_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	search_ID	Ascending	Yes	BTREE
User_ID	User_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_searchuser_ibfk_1	User_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_searchuser` (
```

```
`search_ID` int(11) NOT NULL AUTO_INCREMENT,
`Name` varchar(40) NOT NULL,
 `User_ID` int(11) NOT NULL,
PRIMARY KEY (`search_ID`),
KEY `User_ID` (`User_ID`),
CONSTRAINT `cp_searchuser_ibfk_1` FOREIGN KEY (`User_ID`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=911 DEFAULT CHARSET=utf8mb4
```

cp_sendmessage

I F P	Column name	Data type	Nulls	Default	Description
I	Msg_ID	int	NO		
	Content	varchar (15)	NO		
	Sender	varchar (15)	NO		
I F	Date	int	NO		
	Rmsg_ID	int	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Msg_ID	Ascending	Yes	BTREE
cp_sendmessage_ibfk_1	Date	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_sendmessage_ibfk_1	Date	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_sendmessage` (
`Msg_ID` int(11) NOT NULL AUTO_INCREMENT,
`Content` varchar(15) NOT NULL,
`Sender` varchar(15) NOT NULL,
`Date` int(11) NOT NULL,
`Rmsg_ID` int(11) NOT NULL,
PRIMARY KEY (`Msg_ID`),
KEY `cp_sendmessage_ibfk_1` (`Date`),
CONSTRAINT `cp_sendmessage_ibfk_1` FOREIGN KEY (`Date`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=34 DEFAULT CHARSET=utf8mb4
```

cp_updateprofile

I F P	Column name	Data type	Nulls	Default	Description
I	Upd_ID	int	NO		
	Fname	varchar (60)	NO		
	Skills	varchar (60)	NO		
	Education	varchar (60)	NO		
	Contact	int	NO		
I F	User_ID	int	NO		
	Lname	varchar (45)	NO		
	Email	varchar (45)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	Upd_ID	Ascending	Yes	BTREE
User_ID	User_ID	Ascending	No	BTREE

Foreign keys

Constraint name	Column name	Reference	Description
cp_updateprofile_ibfk_1	User_ID	User_ID (cp_account)	

Table definition

```
CREATE TABLE `cp_updateprofile` (
`Upd_ID` int(11) NOT NULL AUTO_INCREMENT,
`Fname` varchar(60) NOT NULL,
`Skills` varchar(60) NOT NULL,
`Education` varchar(60) NOT NULL,
`Contact` int(11) NOT NULL,
 `User_ID` int(11) NOT NULL,
`Lname` varchar(45) NOT NULL,
`Email` varchar(45) NOT NULL,
PRIMARY KEY (`Upd_ID`),
KEY `User_ID` (`User_ID`),
CONSTRAINT `cp_updateprofile_ibfk_1` FOREIGN KEY (`User_ID`) REFERENCES `cp_user` (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=335 DEFAULT CHARSET=utf8mb4
```

cp_user

I F P	Column name	Data type	Nulls	Default	Description
	User_ID	int	NO		
	Email	varchar (40)	NO		
	Username	varchar (15)	NO		

Indexes

Index name	Column name	Sort direction	Is unique	Index type
PRIMARY	User_ID	Ascending	Yes	BTREE

Table definition

```
CREATE TABLE `cp_user` (
 `User_ID` int(11) NOT NULL AUTO_INCREMENT,
`Email` varchar(40) NOT NULL,
`Username` varchar(15) NOT NULL,
PRIMARY KEY (`User_ID`)
) ENGINE=InnoDB AUTO_INCREMENT=5 DEFAULT CHARSET=utf8mb4
```

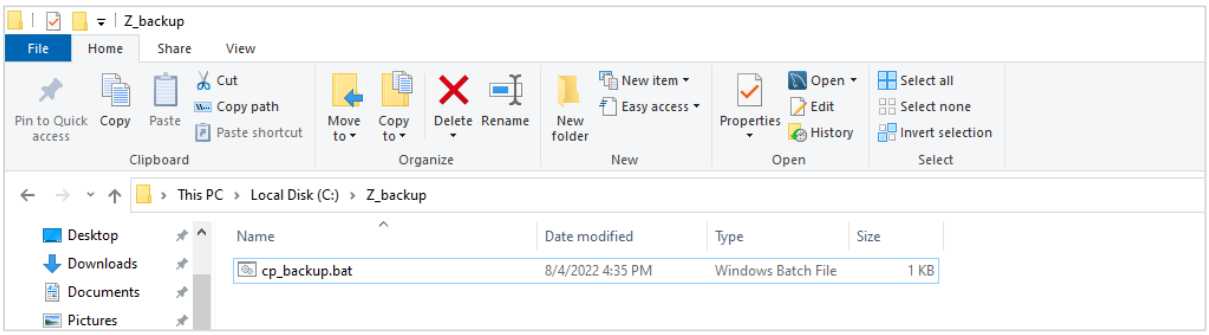
E. Create a batch script to backup database & schedule it to run every 6 hours using windows task scheduler. Provide the script, along with the screen capture of Windows Task Scheduler

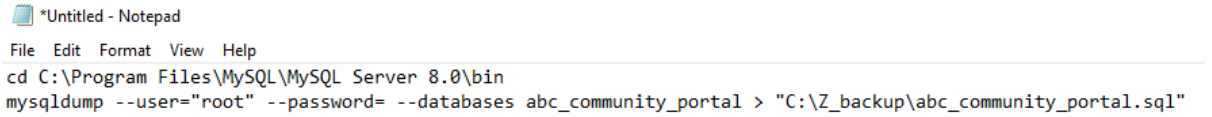
Step 1 - Choose your community portal database and test the command (*mysqldump --user="root" --password --databases abc_community_portal)*

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqldump --user="root" --password --databases abc_community_portal
Enter password:
```

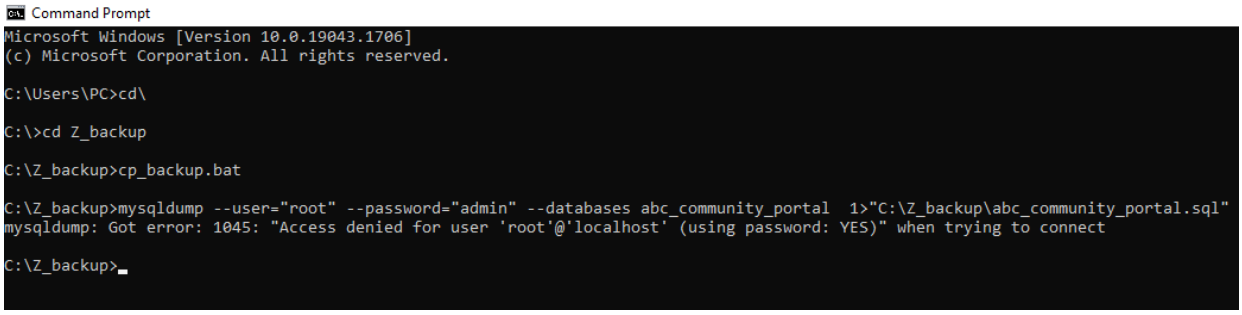
Step 2 - Create the script as executable file.

- Copy the command (*mysqldump --user="root" --password --databases abc_community_portal) > "C:\Z_backup\ abc_community_portal.sql*) in a text field and save it as **cp_backup.bat**

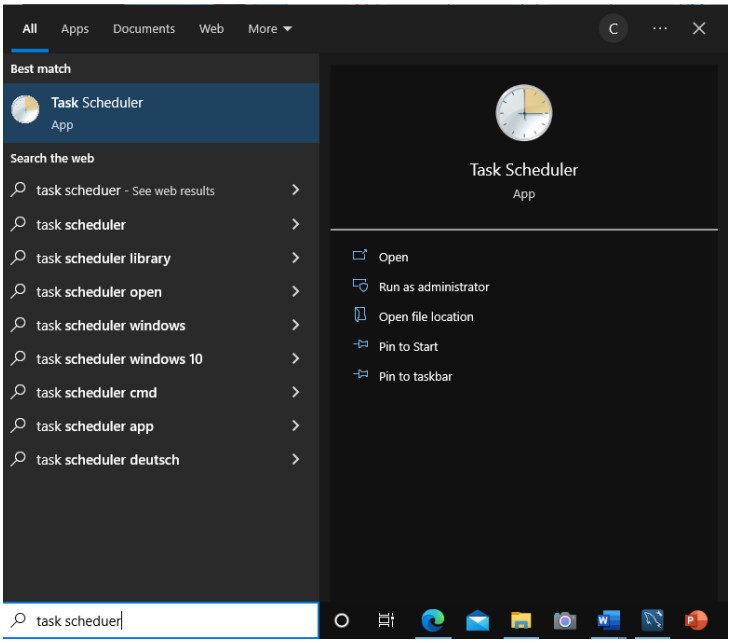




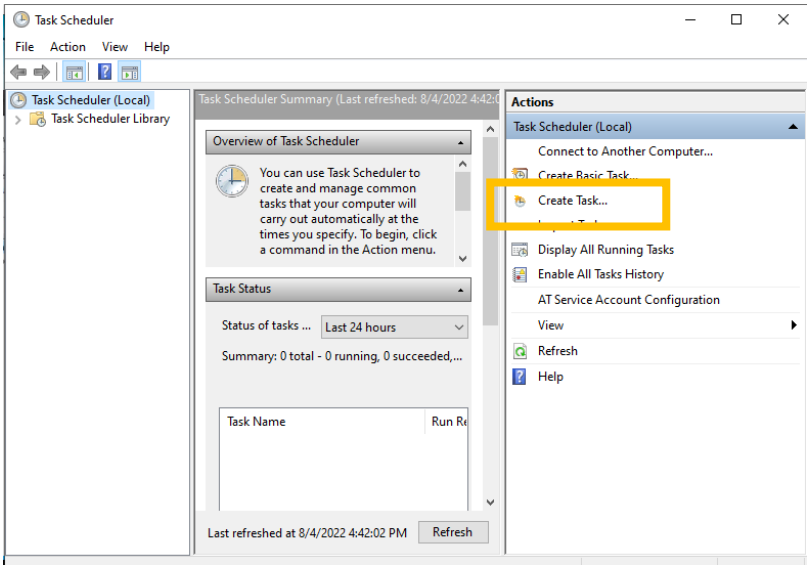
Step 3 – Test the batch file



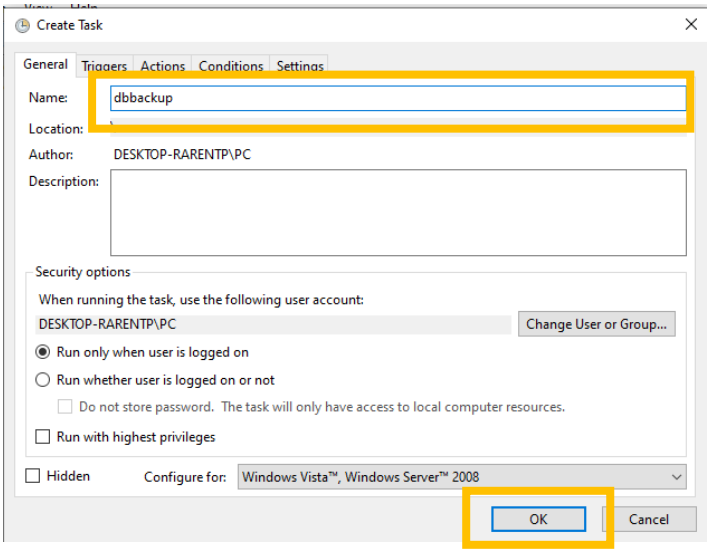
Step 4 – Go to Take Schedular



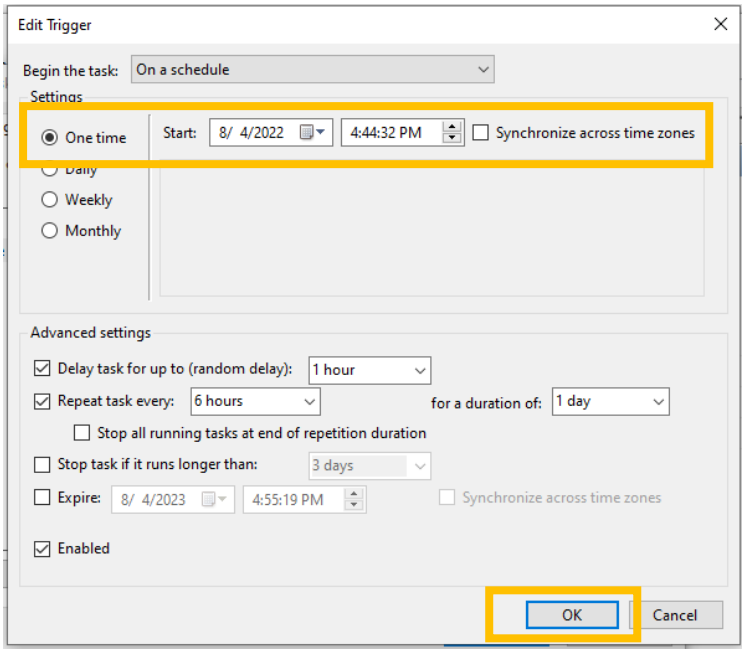
- Click on "Create Task"



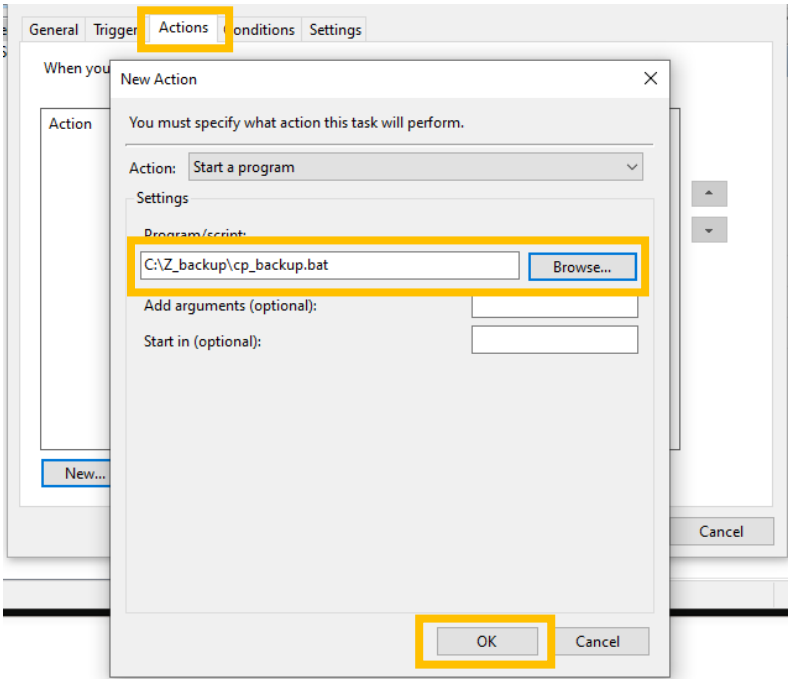
- Enter The task name



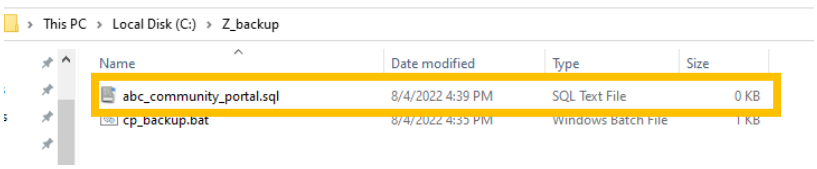
- Create the trigger to run the task at the schedules time. To test it set as one time and verify it.



- Set the action to be triggered. Browse and choose the batch file location



- Check the folder after the scheduled time. We can see backup file in it.



- Change the setting as per the project specification. Choose the scheduled task
- Edit triggers and change the setting as per the project specification
- Restoration Script

Provide a Restoration script in case of failure