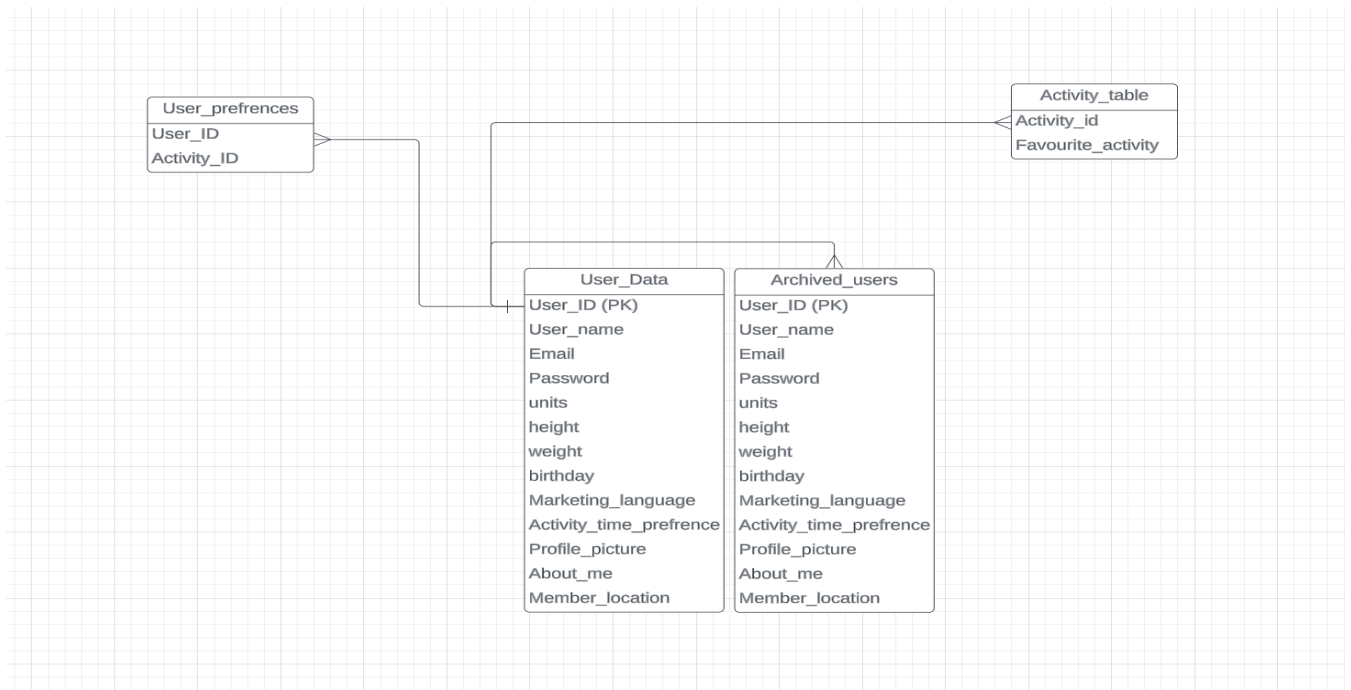


Set Exercise 1: Entity Relationship Diagram (ERD) : 15 marks



Set Exercise 2: Normalisation : 20 marks

UNF	1NF	2NF	3NF
First Name	User ID (PK)	User ID (PK)	User ID (PK)
Last Name	First Name	First Name	First Name
Email	Last Name	Last Name	Last Name
Password	Email	Email	Email
About Me	Password	Password	Password
Favourite Activities	About Me	About Me	About Me
Member Location	Member Location	Member Location	Member Location
Units	Units	Units	Units
Activity time Preference	Activity time Preference	Activity time Preference	Activity time Preference
Height	Height	Height	Height
Weight	Weight	Weight	Weight
Birthday	Birthday	Birthday	Birthday
Marketing Language	Marketing Language	Profile picture	Profile picture
Profile picture	Profile picture	Marketing Language	Marketing Language
	User ID (PK)	User ID (PK)	User ID (PK)
	Favourite Activity	Activity_ID (FK)	Activity_ID (FK)
		Activity ID (PK)	Activity ID (PK)
		Favourite Activity	Favourite Activity
Assumptions:			
1 Users will have one Profile picture			User ID (PK)
			First Name
2 Users can have multiple Favourite activities			Last Name
			Email
			Password
3 When user accounts are deleted they will not be permanently gone, but archived			About Me
			Member Location
			Units
			Activity time Preference
			Height
			Weight
			Birthday
			Profile picture
			Marketing Language

Set Exercise 3: SQL : 15 marks

Run

Cancel

Disconnect

Change

Database: COMP2001_MHodge

Estimated Plan

Enable Actual Plan

Parse

1

SELECT TOP (1000) [User_id]

,

[User_Name]

,

[Email]

,

[Password]

,

[Units]

,

[Height]

,

[Weight]

,

[Birthday]

,

[Marketing_Language]

,

[Activity_time_Preference]

,

[Profile_picture]

,

[About_Me]

,

[Member_Location]

FROM [COMP2001_MHodge].[CW1].[Archive_Users]

Results

Messages

	User_id	User_Name	Email	Password	Units	Height	Weight	Birthday	Marketing_Language	Activity_time_Preference	Profile_picture	About_Me	Member_Location
1	1	Grace Hopper	grace@plymouth.ac.uk	ISAD123!	Metric	165cm	65kg	10.08.2002	English(UK)	Speed	link_for_pfp	Information about Grace	Bristol
2	2	Tim Berners-Lee	tim@plymouth.ac.uk	COMP2001!	Metric	130cm	55kg	09.12.2004	English(UK)	Pace	link_for_pfp	Information about Tim	Leeds
3	3	Ada Lovelace	ada@plymouth.ac.uk	InsecurePassword	Metric	170cm	75kg	02.03.2003	English(UK)	Speed	link_for_pfp	Information about Ada	London

Figure 1:Table1 User Data

```
Table 1 - User_Data

CREATE TABLE [CW1].[User_Data] (
    [User_ID] INT NOT NULL,
    [User_Name] VARCHAR (30) NOT NULL,
    [Email] VARCHAR (40) NOT NULL,
    [Password] VARCHAR (20) NOT NULL,
    [Units] VARCHAR (20) NOT NULL,
    [Height] VARCHAR (20) NOT NULL,
    [Weight] VARCHAR (20) NOT NULL,
    [Birthday] VARCHAR (20) NOT NULL,
    [Marketing_Language] VARCHAR (20) NOT NULL,
    [Activity_time_Preference] VARCHAR (20) NOT NULL,
    [Profile_Picture] VARCHAR (400) NOT NULL,
    [About_Me] VARCHAR (30) NOT NULL,
    [Member_Location] VARCHAR (30) NOT NULL,
    PRIMARY KEY CLUSTERED ([User_ID] ASC)
);
```

Figure 2: Table 1 SQL

```

INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units, Height, Weight, Birthday,
Marketing_Language, Activity_time_Preference, Profile_Picture, About_Me, Member_Location)

VALUES ('1', 'Grace Hopper', 'grace@plymouth.ac.uk', 'ISAD123!', 'Metric', '165cm' , '65kg',
'10.08.2002', 'English(UK)', 'Speed', 'link_for_pfp', 'Information about Grace', 'Bristol');

INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units, Height, Weight, Birthday,
Marketing_Language, Activity_time_Preference, Profile_Picture, About_Me, Member_Location)

VALUES ('2', 'Tim Berners-Lee', 'tim@plymouth.ac.uk', 'COMP2001!', 'Metric', '130cm' , '55kg',
'09.12.2004', 'English(UK)', 'Pace', 'link_for_pfp', 'Information about Tim', 'Leeds');

INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units, Height, Weight, Birthday,
Marketing_Language, Activity_time_Preference, Profile_Picture, About_Me, Member_Location)

VALUES ('3', 'Ada Lovelace', 'ada@plymouth.ac.uk', 'insecurePassword', 'Metric', '170cm' , '75kg',
'02.03.2003', 'English(UK)', 'Speed', 'link_for_pfp', 'Information about Ada', 'London');

```

Figure 3: Sample data for Table 1 (User_Data)

Run Cancel Disconnect Change Database: COMP2001_MHodge

```

1 SELECT TOP (1000) [User_id]
2   ,[Activity_id]
3 FROM [COMP2001_MHodge].[CW1].[User_Preferences]

```

Results		Messages	
	User_id	Activity_id	
1	1	3	
2	2	2	
3	3	1	

Figure 4: Table 2 User Preferences

Table 2 - User_Preferences

```
CREATE TABLE [CW1].[User_Preferences] (  
    [User_id] INT NOT NULL,  
    [Activity_id] INT NULL,  
    PRIMARY KEY CLUSTERED ([User_id] ASC),  
    FOREIGN KEY ([Activity_id]) REFERENCES [CW1].[Activity_table] ([Activity_ID]),  
    FOREIGN KEY ([User_id]) REFERENCES [CW1].[User_Data] ([User_ID])  
);
```

Figure 5: Table 2 SQL

Run Cancel Disconnect Change Database: COMP2001_MHodge

```
1 SELECT TOP (1000) [Activity_ID]  
2     ,[Favourite Activity]  
3 FROM [COMP2001_MHodge].[CW1].[Activity_table]
```

Results		Messages
	Activity_ID ▾	Favourite_Activity ▾
1	1	Walking
2	2	Cycling
3	3	Swimming

Figure 6: Table 3 Activity_Table

Table 3 - Activity_Table

```
CREATE TABLE [CW1].[Activity_table] (  
    [Activity_ID] INT NOT NULL,  
    [Favourite_Activity] VARCHAR (30) NOT NULL,  
    PRIMARY KEY CLUSTERED ([Activity_ID] ASC)  
);
```

Figure 7: SQL for Table 3 (Activity_table)

```
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)  
VALUES ('1', 'Walking');  
  
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)  
VALUES ('2', 'Cycling');  
  
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)  
VALUES ('3', 'Swimming');
```

Figure 8: Sample data for table 3

The screenshot shows a SQL query window with the following query:

```
SELECT TOP (1000) [User_id]  
    , [User_Name]  
    , [Email]  
    , [Password]  
    , [Units]  
    , [Height]  
    , [Weight]  
    , [Birthday]  
    , [Marketing_language]  
    , [Activity_time_Preference]  
    , [Profile_picture]  
    , [About_Me]  
    , [Member_Location]  
FROM [COMP2001_MHodge].[CW1].[Archive_Users]
```

The results window displays the following data:

	User_id	User_Name	Email	Password	Units	Height	Weight	Birthday	Marketing_language	Activity_time_Preference	Profile_picture	About_Me	Member_Location
1	1	Grace Hopper	grace@plymouth.ac.uk	ISAD123!	Metric	165cm	65kg	10.08.2002	English(UK)	Speed	link_for_pfp	Information about Grace	Bristol
2	2	Tim Berners-Lee	tim@plymouth.ac.uk	COMP2001!	Metric	138cm	55kg	09.12.2004	English(UK)	Pace	link_for_pfp	Information about Tim	Leeds
3	3	Ada Lovelace	ada@plymouth.ac.uk	InsecurePassword	Metric	178cm	75kg	02.03.2003	English(UK)	Speed	link_for_pfp	Information about Ada	London

Figure 9: Table 4 (Archive_Users)

```
CREATE TABLE [CW1].[Archive_Users] (  
    [User_id] INT NOT NULL,  
    [User_Name] VARCHAR (30) NOT NULL,  
    [Email] VARCHAR (40) NOT NULL,  
    [Password] VARCHAR (20) NOT NULL,  
    [Units] VARCHAR (20) NOT NULL,  
    [Height] VARCHAR (20) NOT NULL,  
    [Weight] VARCHAR (20) NOT NULL,  
    [Birthday] VARCHAR (20) NOT NULL,  
    [Marketing_language] VARCHAR (20) NOT NULL,  
    [Activity_time_Preference] VARCHAR (20) NOT NULL,  
    [Profile_picture] VARCHAR (400) NOT NULL,  
    [About_Me] VARCHAR (30) NOT NULL,  
    [Member_Location] VARCHAR (30) NOT NULL,  
    PRIMARY KEY CLUSTERED ([User_id] ASC)  
);
```

Figure 10: SQL for table 4 (Archive_user)

Set Exercise 4 : View : 10 marks

```
CREATE VIEW CW1.ViewAll AS
SELECT
User_Name, Email, Password, Units, Height, Weight, Birthday, Marketing_Language,
Activity_time_Preference, Profile_Picture, About_Me, Member_Location,
STRING_AGG(CW1.Activity_Table.Favourite_Activity, ', ') AS all_favorite_activities
FROM
CW1.User_Preferences, CW1.User_Data, CW1.Activity_table
WHERE
CW1.User_Data.User_id = CW1.User_Preferences.User_id
AND CW1.User_Preferences.activity_id = CW1.Activity_table.activity_id
GROUP BY
CW1.User_Data.User_ID,
CW1.User_Data.User_Name,
CW1.User_Data.Email,
CW1.User_Data.Member_Location,
CW1.User_Data.height,
CW1.User_Data.weight,
CW1.User_Data.birthday,
CW1.User_Data.password,
CW1.User_Data.about_me,
CW1.User_Data.units,
CW1.User_Data.activity_time_preference,
CW1.User_Data.marketing_language,
CW1.User_Data.profile_picture;
```

Figure 11:SQL For VIEW

SELECT * FROM CW1.ViewAll;

	User_Name	Email	Password	Units	Height	Weight	Birthday	Marketing_Language	Activity_time_Preference	Profile_Picture	About_Me	Member_Location	all_favorite_activities
1	Grace Hopper	grace@ymouth.ac.uk	154D123!	Metric	165cm	65kg	16.08.2002	English(GB)	Speed	lin_for_gfp	Information about Grace	Bristol	Walking, Cycling, Swimming, Walking, Cycling, Swimming, Walking, Cycling, Swimming
2	Tin Berners-Lee	tin@ymouth.ac.uk	CDP92001	Metric	180cm	55kg	09.12.2004	English(GB)	Pace	lin_for_gfp	Information about Tin	Leeds	Swimming, Cycling, Walking, Swimming, Cycling, Walking, Swimming, Cycling, Walking
3	Ada Lovelace	ada@ymouth.ac.uk	insecurePassword	Metric	170cm	70kg	02.01.2003	English(GB)	Speed	lin_for_gfp	Information about Ada	London	Walking, Cycling, Swimming, Walking, Cycling, Swimming, Walking, Cycling, Swimming

Figure 12: View in use

Set Exercise 5 : Stored procedure : 30 marks

Insert Procedure :

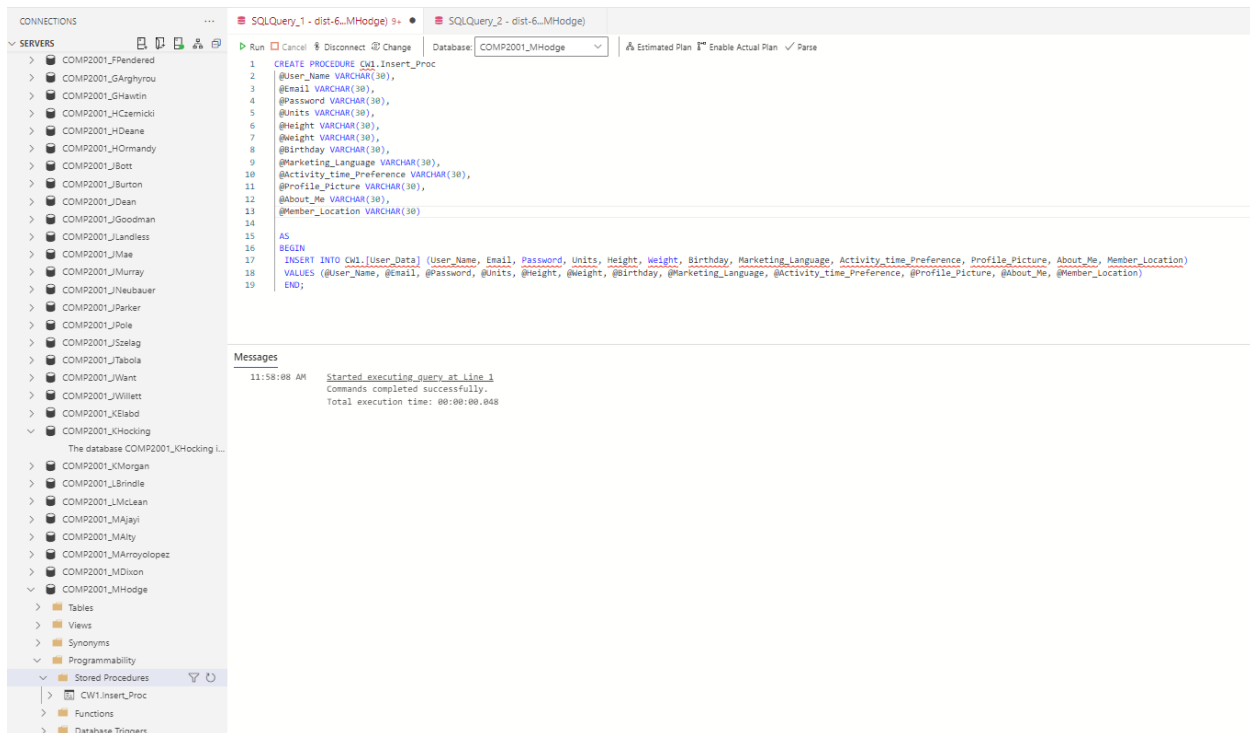


Figure 13:Creating Insert Procedure

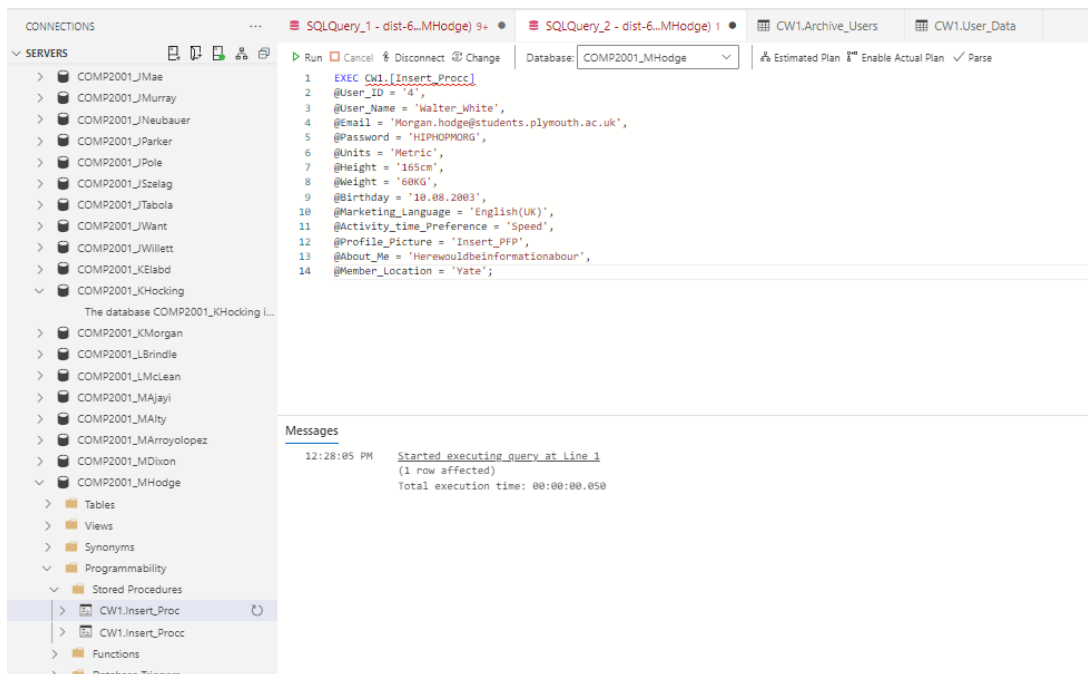
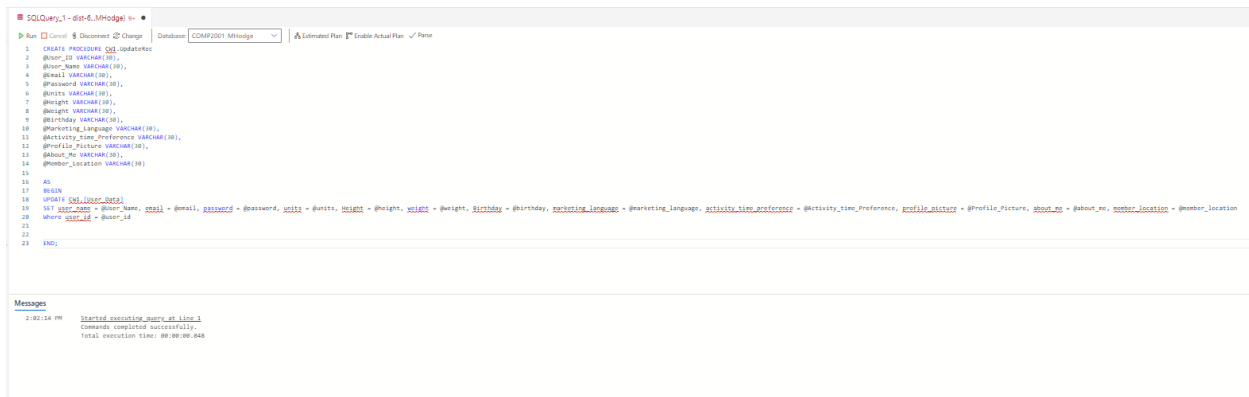


Figure 14:Creating Insert Procedure

Update Procedure:

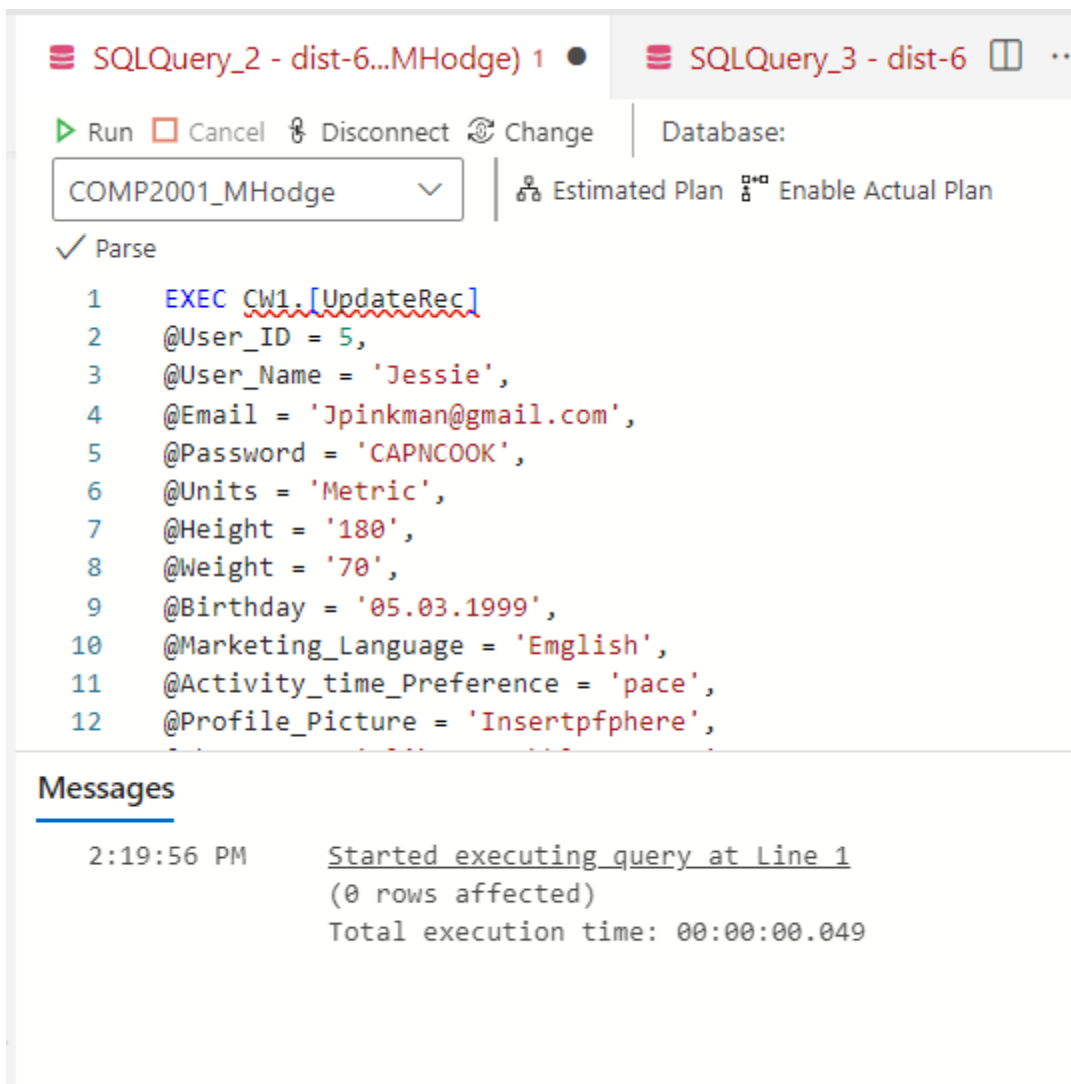


```
SQLQuery_1 - dist-6.MHodge
Run Cancel Disconnect Change
Database: COMP2001_MHodge Estimated Plan Enable Actual Plan Parse
1 CREATE PROCEDURE [dbo].[updateRec]
2 @User_ID VARCHAR(50),
3 @User_Name VARCHAR(50),
4 @Email VARCHAR(50),
5 @Password VARCHAR(50),
6 @Units VARCHAR(50),
7 @Height VARCHAR(50),
8 @Weight VARCHAR(50),
9 @Birthday VARCHAR(50),
10 @Marketing_Language VARCHAR(50),
11 @Activity_time_Preference VARCHAR(50),
12 @Profile_Picture VARCHAR(50),
13 @About_Me VARCHAR(50),
14 @Member_Location VARCHAR(50)
15 AS
16 BEGIN
17 UPDATE [dbo].[User_Info]
18 SET User_Info = @User_Name, Email = @Email, Password = @Password, Units = @Units, Height = @Height, Weight = @Weight, Birthday = @Birthday, Marketing_Language = @Marketing_Language, Activity_time_Preference = @Activity_time_Preference, Profile_Picture = @Profile_Picture, About_Me = @About_Me, Member_Location = @Member_Location
19 WHERE User_ID = @User_ID
20 END;
```

Messages

2:02:14 PM Started executing query at line 1
Commands completed successfully.
Total execution time: 00:00:00.049

Figure 15:Creating Update Procedure



```
SQLQuery_2 - dist-6.MHodge 1
SQLQuery_3 - dist-6
Run Cancel Disconnect Change Database:
COMP2001_MHodge Estimated Plan Enable Actual Plan
Parse
1 EXEC CW1.[UpdateRec]
2 @User_ID = 5,
3 @User_Name = 'Jessie',
4 @Email = 'Jpinkman@gmail.com',
5 @Password = 'CAPNCOOK',
6 @Units = 'Metric',
7 @Height = '180',
8 @Weight = '70',
9 @Birthday = '05.03.1999',
10 @Marketing_Language = 'Emglish',
11 @Activity_time_Preference = 'pace',
12 @Profile_Picture = 'Insertpfphere',
```

Messages

2:19:56 PM Started executing query at Line 1
(0 rows affected)
Total execution time: 00:00:00.049

Figure 16:Update procedure working

Appendix

Table 1 - User_Data

```
CREATE TABLE [CW1].[User_Data] (  
    [User_ID] INT NOT NULL,  
    [User_Name] VARCHAR (30) NOT NULL,  
    [Email] VARCHAR (40) NOT NULL,  
    [Password] VARCHAR (20) NOT NULL,  
    [Units] VARCHAR (20) NOT NULL,  
    [Height] VARCHAR (20) NOT NULL,  
    [Weight] VARCHAR (20) NOT NULL,  
    [Birthday] VARCHAR (20) NOT NULL,  
    [Marketing_Language] VARCHAR (20) NOT NULL,  
    [Activity_time_Preference] VARCHAR (20) NOT NULL,  
    [Profile_Picture] VARCHAR (400) NOT NULL,  
    [About_Me] VARCHAR (30) NOT NULL,  
    [Member_Location] VARCHAR (30) NOT NULL,  
    PRIMARY KEY CLUSTERED ([User_ID] ASC)  
);
```

#####

Table 2 - User_Preferences

```

CREATE TABLE [CW1].[User_Preferences] (
    [User_id]      INT NOT NULL,
    [Activity_id] INT NULL,
    PRIMARY KEY CLUSTERED ([User_id] ASC),
    FOREIGN KEY ([Activity_id]) REFERENCES [CW1].[Activity_table]
([Activity_ID]),
    FOREIGN KEY ([User_id]) REFERENCES [CW1].[User_Data] ([User_ID])
);

```

#####

Table 3 - Activity_Table

```

CREATE TABLE [CW1].[Activity_table] (
    [Activity_ID]      INT      NOT NULL,
    [Favourite_Activity] VARCHAR (30) NOT NULL,
    PRIMARY KEY CLUSTERED ([Activity_ID] ASC)
);

```

#####

Table 4 - Archived_Users

```

CREATE TABLE [CW1].[Archive_Users] (
    [User_id]      INT      NOT NULL,

```

```

[User_Name]                VARCHAR (30)  NOT NULL,
[Email]                    VARCHAR (40)  NOT NULL,
[Password]                VARCHAR (20)  NOT NULL,
[Units]                   VARCHAR (20)  NOT NULL,
[Height]                  VARCHAR (20)  NOT NULL,
[Weight]                  VARCHAR (20)  NOT NULL,
[Birthday]               VARCHAR (20)  NOT NULL,
[Marketing_language]      VARCHAR (20)  NOT NULL,
[Activity_time_Preference] VARCHAR (20)  NOT NULL,
[Profile_picture]         VARCHAR (400) NOT NULL,
[About_Me]                VARCHAR (30)  NOT NULL,
[Member_Location]        VARCHAR (30)  NOT NULL,
PRIMARY KEY CLUSTERED ([User_id] ASC)
);

#####

INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units,
Height, Weight, Birthday, Marketing_Language, Activity_time_Preference,
Profile_Picture, About_Me, Member_Location)

VALUES ('1', 'Grace Hopper', 'grace@plymouth.ac.uk', 'ISAD123!', 'Metric', '165cm'
, '65kg', '10.08.2002', 'English(UK)', 'Speed', 'link_for_pfp', 'Information about
Grace', 'Bristol');

```

```
INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units,
Height, Weight, Birthday, Marketing_Language, Activity_time_Preference,
Profile_Picture, About_Me, Member_Location)
```

```
VALUES ('2', 'Tim Berners-Lee', 'tim@plymouth.ac.uk', 'COMP2001!', 'Metric',
'130cm', '55kg', '09.12.2004', 'English(UK)', 'Pace', 'link_for_pfp', 'Information
about Tim', 'Leeds');
```

```
INSERT INTO CW1.User_Data (User_ID, User_Name, Email, Password, Units,
Height, Weight, Birthday, Marketing_Language, Activity_time_Preference,
Profile_Picture, About_Me, Member_Location)
```

```
VALUES ('3', 'Ada Lovelace', 'ada@plymouth.ac.uk', 'insecurePassword', 'Metric',
'170cm', '75kg', '02.03.2003', 'English(UK)', 'Speed', 'link_for_pfp', 'Information
about Ada', 'London');
```

```
#####
```

```
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)
```

```
VALUES ('1', 'Walking');
```

```
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)
```

```
VALUES ('2', 'Cycling');
```

```
INSERT INTO CW1.Activity_table (Activity_ID, Favourite_Activity)
```

VALUES ('3', 'Swimming');

UPDATE PROCEDURE

CREATE PROCEDURE CW1.UpdateRec

@User_ID VARCHAR(30),

@User_Name VARCHAR(30),

@Email VARCHAR(30),

@Password VARCHAR(30),

@Units VARCHAR(30),

@Height VARCHAR(30),

@Weight VARCHAR(30),

@Birthday VARCHAR(30),

@Marketing_Language VARCHAR(30),

@Activity_time_Preference VARCHAR(30),

@Profile_Picture VARCHAR(30),

@About_Me VARCHAR(30),

@Member_Location VARCHAR(30)

AS

BEGIN

UPDATE CW1.[User_Data]

SET user_name = @User_Name, email = @email, password = @password, units =
@units, Height = @height, weight = @weight, Birthday = @birthday,
marketing_language = @marketing_language, activity_time_preference =

@Activity_time_Preference, profile_picture = @Profile_Picture, about_me =
@about_me, member_location = @member_location

Where user_id = @user_id

END;

```
EXEC CW1.[UpdateRec]
@User_ID = 5,
@User_Name = 'Jessie',
@Email = 'Jpinkman@gmail.com',
@Password = 'CAPNCOOK',
@Units = 'Metric',
@Height = '180',
@Weight = '70',
@Birthday = '05.03.1999',
@Marketing_Language = 'Emglish',
@Activity_time_Preference = 'pace',
@Profile_Picture = 'Insertpfphere',
@About_Me = 'Iliketocookbluesweets',
@Member_Location = 'America'
```