**SQL & EXCEL PROJECT TASK 3 Diabetes Prediction**

1. Retrieve the Patient\_id and ages of all patients.

**SELECT Patient\_id, age**

**FROM patient\_data;**

2. Select all female patients who are older than 40.

**SELECT \***

**FROM patient\_data**

**WHERE gender = ‘Female’ AND age>40;**

3. Calculate the average BMI of patients.

**SELECT AVG (bmi) AS average\_bmi**

**FROM patient\_data;**

4. List patients in descending order of blood glucose levels.

**SELECT \***

**FROM patient\_data**

**ORDER BY blood\_glucose\_level DESC;**

5. Find patients who have hypertension and diabetes.

**SELECT \***

**FROM patient\_data**

**WHERE hypertension = 1 AND diabetes = 1;**

6. Determine the number of patients with heart disease.

**SELECT COUNT (\*) AS num\_patients\_with\_heart\_disease**

**FROM patient\_data**

**WHERE heart\_disease = 1;**

7. Group patients by smoking history and count how many smokers and non-smokers there are.

**SELECT smoking\_history, COUNT (\*) AS patient\_count**

**FROM patient\_data**

**GROUP BY smoking\_history;**

8. Retrieve the Patient\_ids of patients who have a BMI greater than the average BMI.

**SELECT Patient\_id**

**FROM patient\_data**

**WHERE bmi > (SELECT AVG (bmi) FROM patient\_data);**

9. Find the patient with the highest HbA1c level and the patient with the lowest HbA1clevel.

**SELECT \***

**FROM patient\_data**

**ORDER BY HbA1c\_level DESC**

**LIMIT 1;**

10. Calculate the age of patients in years (assuming the current date as of now).

**SELECT Patient\_id**

**birthdate,**

**ROUND((julianday(‘now’)-julianday(birthdate))/365.25) AS age\_in\_years**

**FROM patient\_data;**

11. Rank patients by blood glucose level within each gender group.

**SELECT**

**Patient\_id,**

**gender,**

**blood\_glucose\_level,**

**RANK () OVER (PARTITION BY gender ORDER BY blood\_glucose\_level DESC)**

**AS glucose\_rank\_within\_gender FROM patient\_data;**

12. Update the smoking history of patients who are older than 50 to "Ex-smoker."

**UPDATE patient\_data**

**SET smoking\_history = ‘Ex-smoker’**

**WHERE age>50;**

13. Insert a new patient into the database with sample data.

**INSERT INTO patient\_data (EmployeeName, Patient\_id,**

**gender,age, hypertension,**

**heart\_disease, smoking\_history,**

**bmi, HbA1c\_level,**

**blood\_glucose\_level, diabetes)**

**VALUES (‘NEW PATIENT’, ‘PT999’, ‘Male’, 60, 1, 0, ‘former’, 25.5, 6.0, 120, 0);**

14. Delete all patients with heart disease from the database.

**DELETE FROM patient\_data**

**WHERE heart\_disease = 1;**

15. Find patients who have hypertension but not diabetes using the EXCEPT operator.

**SELECT Patient\_id**

**FROM patient\_data**

**WHERE hypertension = 1 AND Patient\_id NOT IN (**

**SELET Patient\_id**

**FROM patient\_data**

**WHERE diabetes = 1**

**);**

