For question 1a:

Creating database **Accomodation** and creating *student*, *student_hostel* and *hostel* tables then inserting records using the following commands as shown in the 2 screenshorts below

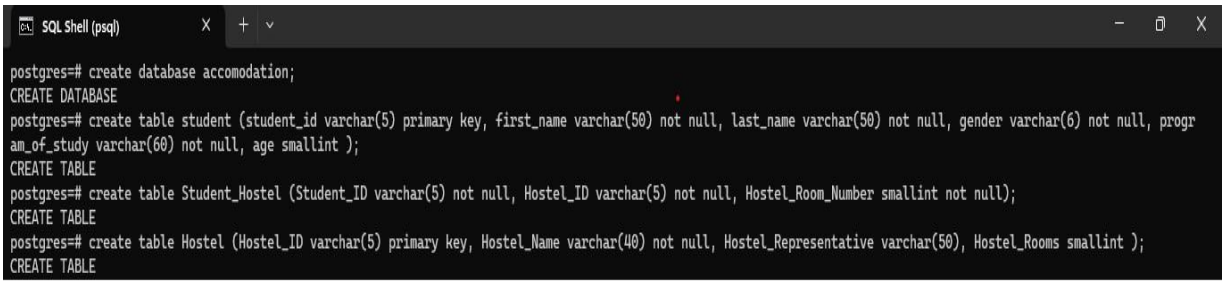
create database accomodation;

create table student (student_id varchar(5) primary key, first_name varchar(50) not null, last_name varchar(50) not null, gender varchar(6) not null, program_of_study varchar(60) not null, age smallint);

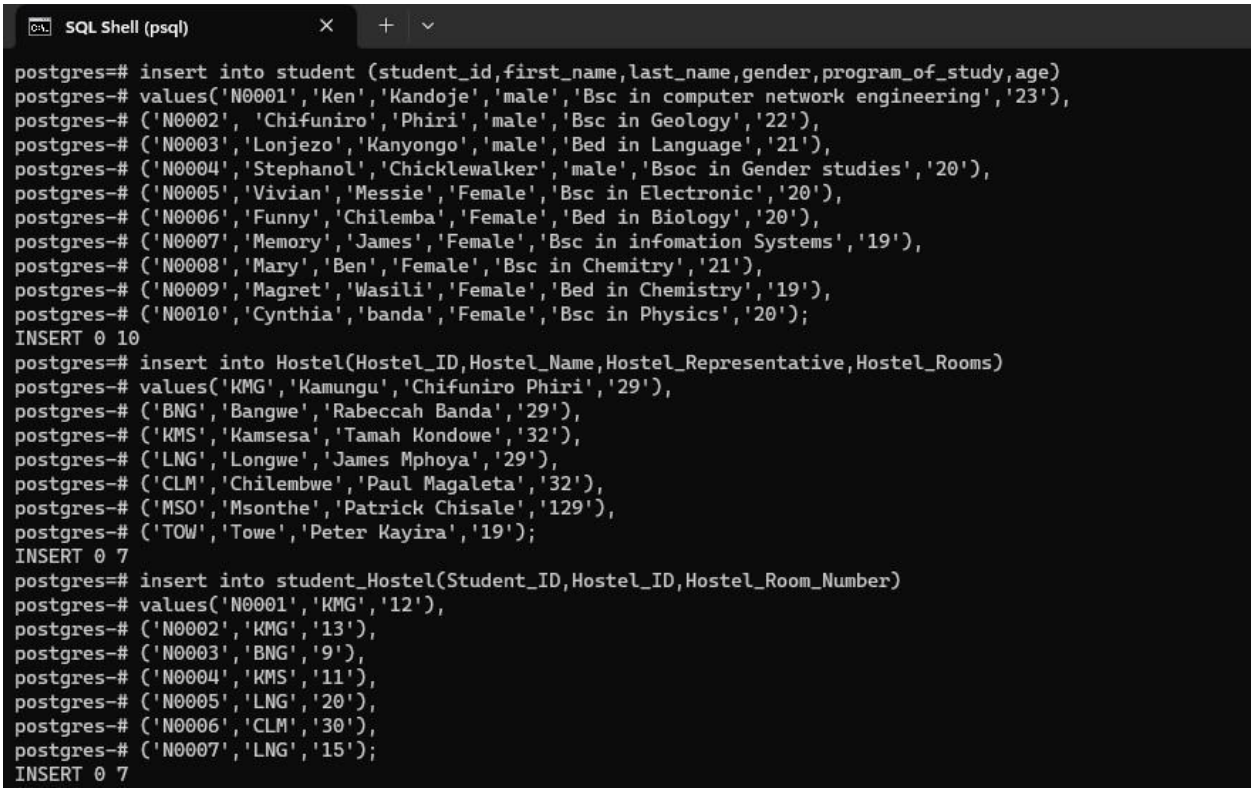
create table Student_Hostel (Student_ID varchar(5) not null, Hostel_ID varchar(5) not null, Hostel_Room_Number smallint not null);

create table Hostel (Hostel_ID varchar(5) primary key, Hostel_Name varchar(40) not null, Hostel_Representative varchar(50), Hostel_Rooms smallint);

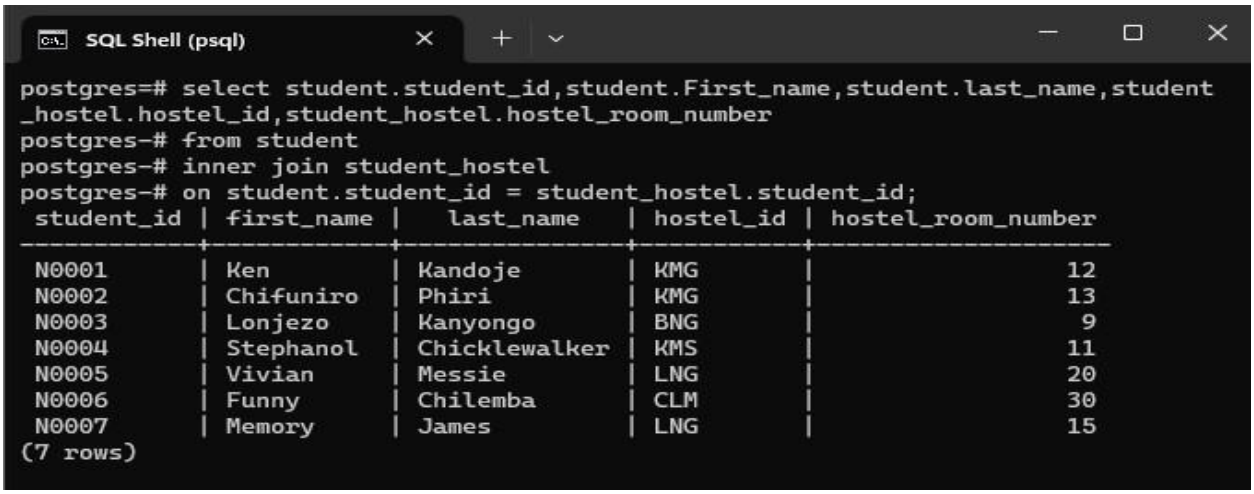
this is the output:



This is for the insertion of data



For question 2(Display all the students that have been allocated rooms in different hostels): **using the inner join as shown below to display students with the rooms**



For question 3: Display all students that do not belong to any hostel

Using LEFT OUTER JOIN syntax where the relationship between the student id and hostel id shows allocation of the room such that those names without hostel id have no rooms allocated to them , using these commands:

select student.student_id,student.First_name,student.last_name,student_hostel.hostel_id,

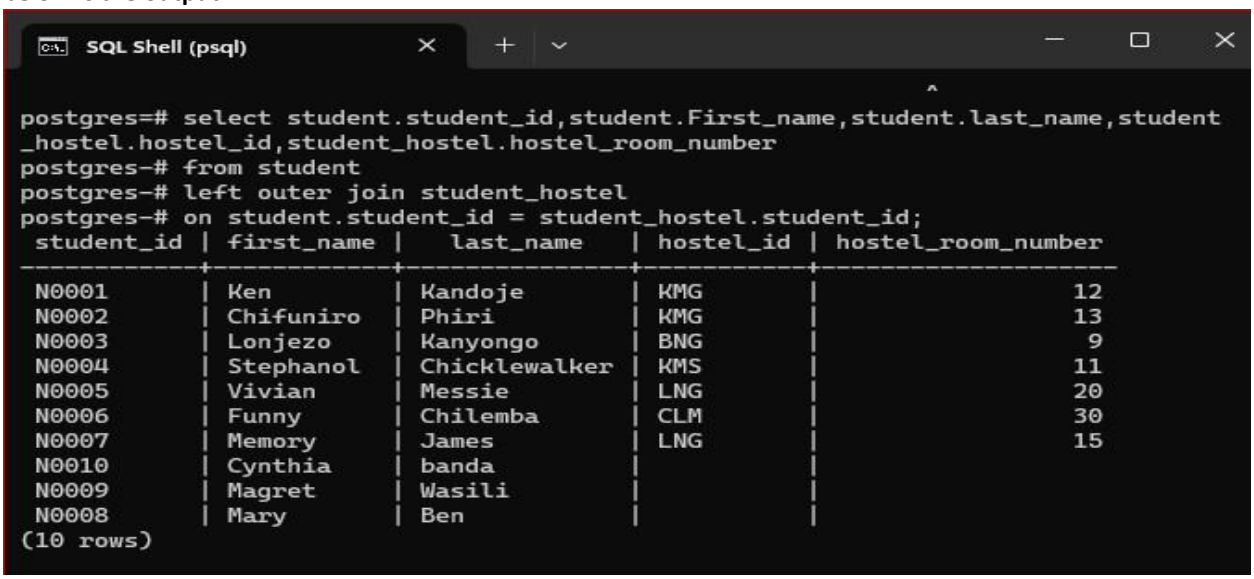
student_hostel.hostel_room_number

from student

left outer join student_hostel

on student.student_id = student_hostel.student_id;

below is the output:



FOR QUESTION 4: Check if there are hostels without students

At this point we use RIGHT OUTER JOIN to combine the hostel and student hostels because they have common record '*hostel-id*', using these commands :

select student_hostel.student_id,student_hostel.hostel_room_number,hostel.hostel_id,

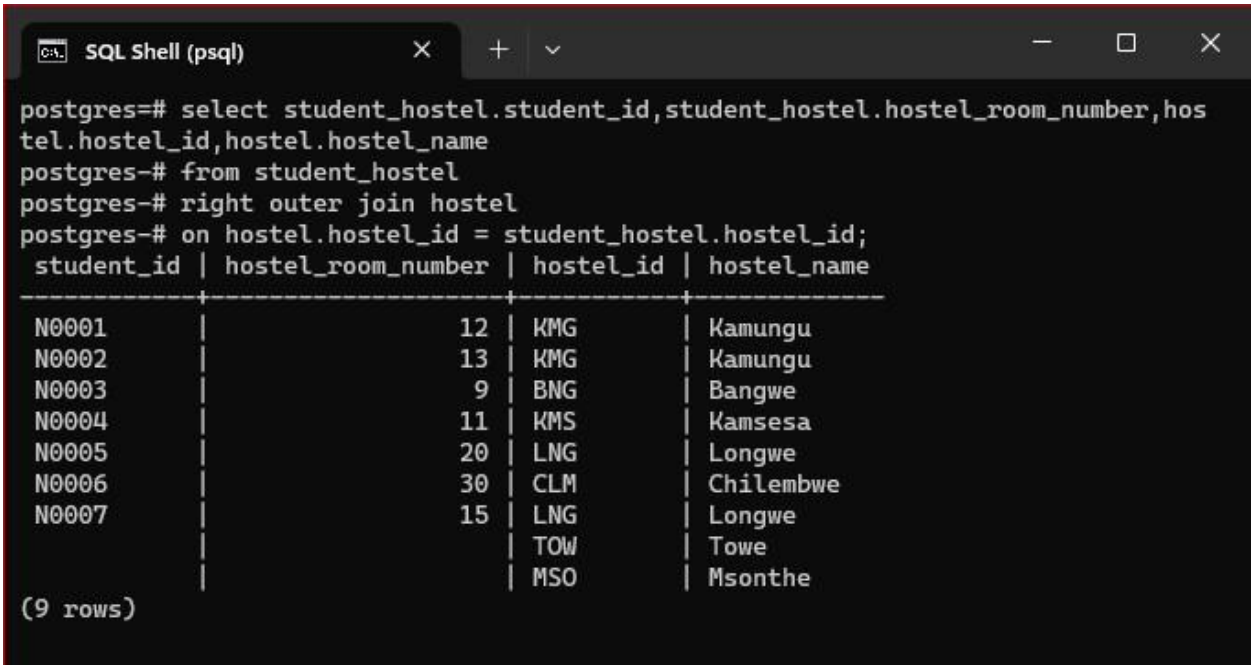
hostel.hostel_name

from student_hostel

full outer join hostel

on hostel.hostel_id = student_hostel.hostel_id;

Down, is the output.



for question 5: Check all students without hostels and all hostels without students. Here I used full outer join to join all three tables using ***student_hostel*** as junction table using these commands

select student.student_id,student.First_name,student.last_name,student_hostel.hostel_room_number,
hostel.hostel_id,hostel.hostel_name
from student
full outer join student_hostel
on student.student_id = student_hostel.student_id
full outer join hostel
on student_hostel.hostel_id = hostel.hostel_id;

below is the output.

```
postgres=# select student.student_id,student.First_name,student.last_name,student_hostel.hostel_id,student
_hostel.hostel_room_number,hostel.hostel_id,hostel.hostel_name
postgres-# from student
postgres-# full outer join student_hostel
postgres-# on student.student_id = student_hostel.student_id
postgres-# full outer join hostel
postgres-# on student_hostel.hostel_id = hostel.hostel_id;
 student_id | first_name |   last_name   | hostel_id | hostel_room_number | hostel_id | hostel_name
------------+------------+---------------+-----------+--------------------+-----------+-------------
 N0001      | Ken        | Kandoje       | KMG       |                 12 | KMG       | Kamungu
 N0002      | Chifuniro  | Phiri         | KMG       |                 13 | KMG       | Kamungu
 N0003      | Lonjezo    | Kanyongo      | BNG       |                  9 | BNG       | Bangwe
 N0004      | Stephanol  | Chicklewalker | KMS       |                 11 | KMS       | Kamsesa
 N0005      | Vivian     | Messie        | LNG       |                 20 | LNG       | Longwe
 N0006      | Funny      | Chilemba      | CLM       |                 30 | CLM       | Chilembwe
 N0007      | Memory     | James         | LNG       |                 15 | LNG       | Longwe
 N0010      | Cynthia    | banda         |           |                    |           |
 N0009      | Magret     | Wasili        |           |                    |           |
 N0008      | Mary       | Ben           |           |                    |           |
            |            |               |           |                    | TOW       | Towe
            |            |               |           |                    | MSO       | Msonthe
(12 rows)
```