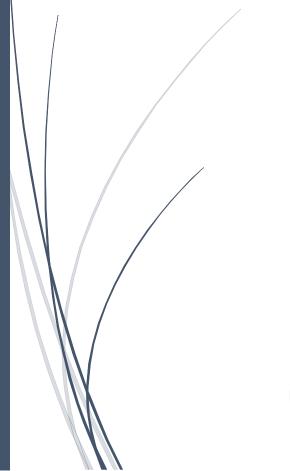# Assignment

Ntsako Baloyi
[COMPANY NAME]

## Question 1

```sql
create database STUDENT_REGISTRATION;

create schema N19342975;

create table N19342975.students
(
        student_id varchar(8) not null primary key,
        student_name varchar(40) not null,
        student_surname varchar(40) not null
)

create table N19342975.modules
(
        module_id varchar(8) not null primary key,
        module_name varchar(40) not null,
        module_credit smallint not null
)

create table N19342975.student_modules
(
        student_id varchar(8) foreign key references N19342975.students(student_id),
        module_id varchar(8) foreign key references N19342975.modules(module_id),

        primary key(student_id, module_id)
)

create table N19342975.lecturers
(
        lecturer_id varchar(8) not null primary key,
        lecturer_name varchar(40) not null,
        lecturer_surname varchar(40) not null
)

create table N19342975.lecturer_modules
(
        lecturer_id varchar(8) foreign key references N19342975.lecturers(lecturer_id),
        module_id varchar(8) foreign key references N19342975.modules(module_id),

        primary key (lecturer_id, module_id)
)
```

- ⊞ ▦ N19342975.lecturer_modules
- ⊞ ▦ N19342975.lecturers
- ⊞ ▦ N19342975.modules
- ⊞ ▦ N19342975.student_modules
- ⊞ ▦ N19342975.students

# Question 2

```sql
insert into N19342975.students (student_id, student_name, student_surname)
values
        ('S123456', 'Neo', 'Petlele'),
        ('S246810', 'Derek', 'Moore'),
        ('S369121', 'Pedro', 'Ntaba'),
        ('S654321', 'Thabo', 'Joe'),
        ('S987654', 'Dominique', 'Woolridge');
```

|   | student_id | student_name | student_surname |
|---|-----------|-------------|-----------------|
| 1 | S123456 | Neo | Petlele |
| 2 | S246810 | Derek | Moore |
| 3 | S369121 | Pedro | Ntaba |
| 4 | S654321 | Thabo | Joe |
| 5 | S987654 | Dominique | Smith |

```sql
insert into N19342975.modules(module_id, module_name, module_credit)
values
        ('DATA6212', 'Database Intermediate', '30'),
        ('INPU221', 'Desktop Publishing', '20'),
        ('PROG6211', 'Programming 2A', '15'),
        ('PROG6212', 'Programming 2B', '15'),
        ('WEDE220', 'Web Development (Intermediate)', '20');
```

|   | module_id | module_name | module_credit |
|---|-----------|-------------|---------------|
| 1 | DATA6212 | Database Intermediate | 30 |
| 2 | INPU221 | Desktop Publishing | 20 |
| 3 | PROG6211 | Programming 2A | 15 |
| 4 | PROG6212 | Programming 2B | 15 |
| 5 | WEDE220 | Web Development (I... | 20 |

```sql
insert into N19342975.student_modules(student_id, module_id)
values
        ('S123456', 'PROG6211'),
        ('S123456', 'PROG6212'),
        ('S246810', 'DATA6212'),
        ('S369121', 'DATA6212'),
        ('S369121', 'INPU221'),
        ('S369121', 'WEDE220'),
        ('S987654', 'PROG6211'),
        ('S987654', 'PROG6212'),
        ('S987654', 'WEDE220');
```

|   | student_id | module_id |
|---|-----------|-----------|
| 1 | S123456 | PROG6211 |
| 2 | S123456 | PROG6212 |
| 3 | S246810 | DATA6212 |
| 4 | S369121 | DATA6212 |
| 5 | S369121 | INPU221 |
| 6 | S369121 | WEDE220 |
| 7 | S987654 | PROG6211 |
| 8 | S987654 | PROG6212 |

```sql
insert into N19342975.lecturers(lecturer_id, lecturer_name, lecturer_surname)
values
        ('L578963', 'Kwezi', 'Mbete'),
        ('L876592', 'Julia', 'Robins'),
        ('L916482', 'Trevor', 'January');
```

|   | lecturer_id | lecturer_name | lecturer_surname |
|---|-------------|---------------|------------------|
| 1 | L578963 | Kwezi | Mbete |
| 2 | L876592 | Julia | Robins |
| 3 | L916482 | Trevor | January |

```sql
insert into N19342975.lecturer_modules(module_id, lecturer_id)
```

```sql
values
        ('DATA6212', 'L578963'),
        ('INPU221', 'L876592'),
        ('PROG6211', 'L916482'),
        ('PROG6212', 'L916482'),
        ('WEDE220', 'L876592');
```

| | lecturer_id | module_id |
|---|---|---|
| 1 | L578963 | DATA6212 |
| 2 | L876592 | INPU221 |
| 3 | L876592 | WEDE220 |
| 4 | L916482 | PROG62... |
| 5 | L916482 | PROG62... |

## Question 3

```sql
update N19342975.students
set student_surname = 'Smith'
where student_id = 'S987654';
```

| | student_id | student_name | student_surname |
|---|---|---|---|
| 1 | S987654 | Dominique | Smith |

## Question 4

```sql
SELECT student_surname, student_name, module_name
FROM N19342975.students s, N19342975.modules m, N19342975.student_modules sm
WHERE sm.module_id = m.module_id
AND sm.student_id = s.student_id
ORDER BY S.student_surname ASC;
```

| | student_surname | student_name | module_name |
|---|---|---|---|
| 1 | Moore | Derek | Database Intermediate |
| 2 | Ntaba | Pedro | Database Intermediate |
| 3 | Ntaba | Pedro | Desktop Publishing |
| 4 | Ntaba | Pedro | Web Development (Intermediate) |
| 5 | Petlele | Neo | Programming 2A |
| 6 | Petlele | Neo | Programming 2B |
| 7 | Smith | Dominique | Programming 2A |
| 8 | Smith | Dominique | Programming 2B |
| 9 | Smith | Dominique | Web Development (Intermediate) |

## Question 5

```sql
select top 1 CONCAT(s.student_name, ' ', s.student_surname) AS STUDENT,
SUM(m.module_credit) AS 'TOTAL CREDITS'
from N19342975.students s
    inner join N19342975.student_modules sm
        on s.student_id = sm.student_id
    inner join N19342975.modules m
        on m.module_id = sm.module_id
    group by s.student_name, s.student_surname
    order by 'TOTAL CREDITS' desc
```

| | STUDENT | TOTAL CREDITS |
|---|---|---|
| 1 | Pedro Ntaba | 70 |

## Question 6

```sql
select s.student_id,CONCAT(s.student_name, ', ', s.student_surname) AS STUDENT
from N19342975.students s
left join N19342975.student_modules m
on s.student_id = m.student_id
where m.module_id is null
```

| | student_id | STUDENT |
|---|---|---|
| 1 | S654321 | Thabo, Joe |

Question 7

```sql
delete from N19342975.students
where N19342975.students.student_id = 'S654321';
```

Question 8

```sql
select CONCAT(l.lecturer_name,',', l.lecturer_surname) AS LECTURER,
COUNT(l.lecturer_id) AS 'NUMBER OF MODULES'
from N19342975.lecturers AS l, N19342975.lecturer_modules AS lm
where l.lecturer_id = lm.lecturer_id
group by l.lecturer_name, l.lecturer_surname
having COUNT(l.lecturer_id) > 1
```

|   | LECTURER | NUMBER OF MODULES |
|---|----------|-------------------|
| 1 | Trevor,January | 2 |
| 2 | Julia,Robins | 2 |

Question 9

```sql
select a.module_name, b.module_credit
from N19342975.modules AS a, N19342975.modules AS b
where a.module_id <> b.module_id AND a.module_credit = b.module_credit
order by b.module_credit
```

|   | module_name | module_credit |
|---|-------------|---------------|
| 1 | Programming 2A | 15 |
| 2 | Programming 2B | 15 |
| 3 | Web Development (Intermediate) | 20 |
| 4 | Desktop Publishing | 20 |