'Blossoms School' wants to automate the process of allocation of teachers for the classes. To facilitate the teacher allocation, a database has to be maintained to keep track of teachers, subjects and allocation accordingly.

Table: teacher

The **teacher** table provides the details of all teachers

Column Name	Data Type and Size	Constraints	Description
teacherid	VARCHAR2(6)	PRIMARY KEY, CHECK	unique id for each teacher, starts with 'T'
firstname	VARCHAR2(30)	NOT NULL	first name of the teacher
lastname	VARCHAR2(30)		last name of the teacher
city	VARCHAR2(30)		city of the teacher
salary	NUMBER(6)		salary of the teacher
availability	CHAR(1)	CHECK	status of the teacher whether available or not. It can be either 'Y' or 'N'

Table: subject

The **subject** table provides the details of all subjects.

Column Name	Data Type and Size	Constraints	Description
subjectid	VARCHAR2(6)	PRIMARY KEY, CHECK	unique id for each subject, starts with 'S'

Column Name	Data Type and Size	Constraints	Description
subjectid	VARCHAR2(6)	PRIMARY KEY, CHECK	unique id for each subject, starts with 'S'
subjectname	VARCHAR2(20)		name of the subject
noofdays	NUMBER(2)		duration of the subject handled
credit	NUMBER(2)		credits for each subject
teacherid	VARCHAR2(6)	FOREIGN KEY	existing teacherid in the teacher table who is in charge of the subject

Table: allocation

The **allocation** table provides the details of all allocation of subjects to the teachers.

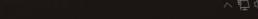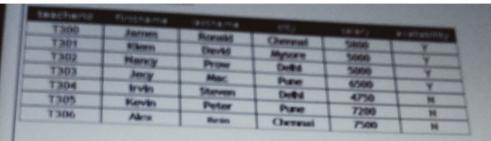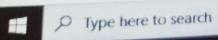| Column Name	Data Type and Size	Constraints	Description
allocationid	VARCHAR2(5)	PRIMARY KEY, CHECK	unique id for each allocation, starts with 'A'
teacherid	VARCHAR2(6)	FOREIGN KEY	existing teacherid in the teacher table
subjectid	VARCHAR2(6)	FOREIGN KEY	existing subjectid in the subject table
deliverymode	VARCHAR2(3)	CHECK	delivery mode, should be either 'CLR' or 'VCR'
bonus	NUMBER(4)		bonus awarded for each allocation

teacherid	firstname	lastname	city	salary	availability
T300	James	Ronald	Chennai	5000	Y
T301	Klem	David	Mysore	5000	Y
T302	Nancy	Prow	Delhi	5000	Y
T303	Jerry	Mac	Pune	6500	Y
T304	Irvin	Steven	Delhi	4750	N
T305	Kevin	Peter	Pune	7200	N
T306	Alex	Brin	Chennai	7500	N

Sample data for **subject** table:

subjectid	subjectname	noofdays	credit	teacherid
S400	JEE	12	4	T304
S401	SE	7	3	T300
S402	ICS	10	3	T301
S403	SAP	8	4	T305

Sample data for **allocation** table:

allocationid	teacherid	subjectid	deliverymode	bonus
A560	T300	S400	CLR	600
A561	T300	S400	VCR	1000
A562	T302	S401	CLR	400

Sample data for allocation table:

allocationid	teacherid	subjectid	deliverymode	bonus
A560	T300	S400	CLR	600
A561	T300	S400	VCR	1000
A562	T302	S401	CLR	400
A563	T302	S401	CLR	400
A564	T301	S400	CLR	600
A565	T303	S403	CLR	800
A566	T303	S401	VCR	900
A567	T302	S403	CLR	800

Write SQL Queries for the following problem statements   **[20 marks]**

Important Note: For the given requirements, remove DUPLICATE records wherever applicable.

A. Display **firstname, lastname** and **city** of those teacher(s) who are available in 'Pune' or 'Mysore'. Perform **case sensitive** search.
   For the given sample data, following is the expected output.

FIRSTNAME	LASTNAME	CITY
Jecy	Mac	Pune
Klem	David	Mysore

[2 marks]

   Note: Type the solution in **dbms_solA.sql** file.

B. Display **subjectid** and **firstname** of the teacher(s) who are in charge of the subject and whose salary is greater than 5000.
   For the given sample data, following record will feature as part of the output along with other record(s).

SUBJECTID	FIRSTNAME
S401	

O Type here to search

... ... in dbms_solA.sql file.

| | David | Mysore |

B. Display **subjectid** and **firstname** of the teacher(s) who are in charge of the subject and whose salary is greater than 5000.
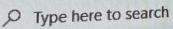For the given sample data, following record will feature as part of the output along with other record(s).

SUBJECTID	FIRSTNAME
S401	James

Note: Type the solution in **dbms_solB.sql** file.

[2 marks]

C. Display **subjectname** and **noofdays** of those subject(s) which have noofdays same or more than the average noofdays of all the subjects.
For the given sample data, following record will feature as part of the output along with other record(s).

SUBJECTNAME	NOOFDAYS
JEE	12

Note: Type the solution in **dbms_solC.sql** file.

[2 marks]

D. Display **teacherid** and **city** of those teacher(s) who belong to the same city and whose firstname contains 'A' or 'E' anywhere. Perform **case insensitive** sear...
For the given sample data, following records will feature as part of the output along with other record(s).

TEACHERID	CITY
T305	Pune
T306	Chennai

Type here to search

identify teacher(s) who have been allocated a subject to deliver in 'VCR' mode and is in charge of any subject. Display the numeric part of allocationid as "ALLOCATION" (column alias), **lastname** and **subjectname** of the subject allocated for the identified teacher(s).
For the given sample data, following is the expected output.

ALLOCATION	LASTNAME	SUBJECTNAME
561	Ronald	JEE

Note: Type the solution in **dbms_solE.sql** file.

[3 marks]

F. Identify the teacher(s) who are allocated with any subject(s) for the highest total noofdays with credit 4. Display **teacherid** and total noofdays as "DAYS" (column alias) for the identified teacher(s).
For the given sample data, following is the expected output.

TEACHERID	DAYS
T300	24

Note: Type the solution in **dbms_solF.sql** file

[3 marks]

G. Display **firstname**, subjectname as "SUBJECT" (column alias) and bonus as "BONUS" (column alias) for all the teachers. Display 'NS' for SUBJECT and 'NB' for BONUS if the teac allocated with any subject or receiving bonus less than 700.
For the given sample data, following records will feature as part of the output along with other record(s).

FIRSTNAME	SUBJECT	BONUS
Nancy	SAP	800
Alex	NS	NB

[3 marks]

Note: Type the solution in **dbms_solG.sql** file

H. A query for a particular requirement is written using JOINS.

```
SELECT a.teacherid, a.subjectid, a.deliverymode
FROM allocation a JOIN allocation aa ON aa.teacherid=a.teacherid
```

G. Display **firstname**, subjectname as **"SUBJECT"** (column alias) and bonus as **"BONUS"** (column alias) for all the teachers. Display 'NS' for SUBJECT and 'NB' for
allocated with any subject or receiving bonus less than 700.
For the given sample data, following records will feature as part of the output along with other record(s).

Note: Type the solution in **dbms_solG.sql** file

FIRSTNAME	SUBJECT	BONUS
Nancy	SAP	800
Alex	NS	NB

[3 marks]

H. A query for a particular requirement is written using JOINS.

SELECT a.teacherid, a.subjectid, a.deliverymode
FROM allocation a JOIN allocation aa ON aa.teacherid=a.teacherid
WHERE aa.subjectid=a.subjectid AND aa.deliverymode<>a.deliverymode;

For the given sample data, following record will feature as part of the output along with other record(s).

TEACHERID	SUBJECTID	DELIVERYMODE
T300	S400	CLR

Rewrite the query using Correlated Subquery only.

Note: Type the solution in **dbms_solH.sql** file.

[3 marks]