

Competitive Exams Related Information Management System

Abstract

This project primarily deals with the management of the information related to the competitive exams. With the increasing competitive spirit among the students who resort to attempt numerous such tests, it has become more important to provide and secure the information about such exams at one place so that it's easier to get the gist of what those exams require and test as it can provide everything from how to register, checking the eligibility criteria and how the score is generated. The project is implemented by SQL at the back -end and by JAVA at the front-end. Through this project, an efficient information management system is achieved which helps the students to be updated about various examinations they take and also helps them to be aware of the grading and the minimum qualifying score needed to pass the test.

Requirement Analysis

The basic requirements for this project are 8 tables and 20 attributes in all. Out of the 8 tables, there are 4 entity sets and 4 relationship sets. The information given below is the list of all attributes with respect to their tables:-

1. Students:-

- a) Name: A multi-valued attribute comprising the name of the student. (Char)*
- b) D.O.B: An attribute containing the date of birth of the student. (Date)*
- c) Id: A primary key attribute which contains unique number which distinguishes a student. (Varchar)*
- d) Educational Qualification: An attribute that comprises of the academic qualifications of a student. (Varchar)*
- e) Work Experience: An attribute that contains information about industry exposure and internship details, if any. (Number)*
- f) Grades: A multi-valued attribute that contains details about the grades secured by the student in class 10, class 12, Bachelor's degree. (Varchar)*

2. Examinations:-

- a) Ename: The attribute which has the name of the examination. (Char)*

- b) **Pattern:** *The attribute containing the details of the exam i.e. whether it's an objective type or subjective type or both. (Char)*
- c) **Marks:** *An attribute used for holding the total marks of the examination. (Number)*
- d) **Score Validity:** *It contains the time duration from the date of results until the final score of the exam is valid i.e. accepted by organizations or universities. (Number)*
- e) **Grading:** *It contains details about the how the exam is graded. (Varchar)*
- f) **Duration:** *It contains the duration of the exam. (Varchar)*
- g) **Syllabus:** *It stores the syllabus of the exam. (Char)*
- h) **Pre-requisites:** *It holds down a basic /essential necessities for a student to appear for the exam. (Varchar)*

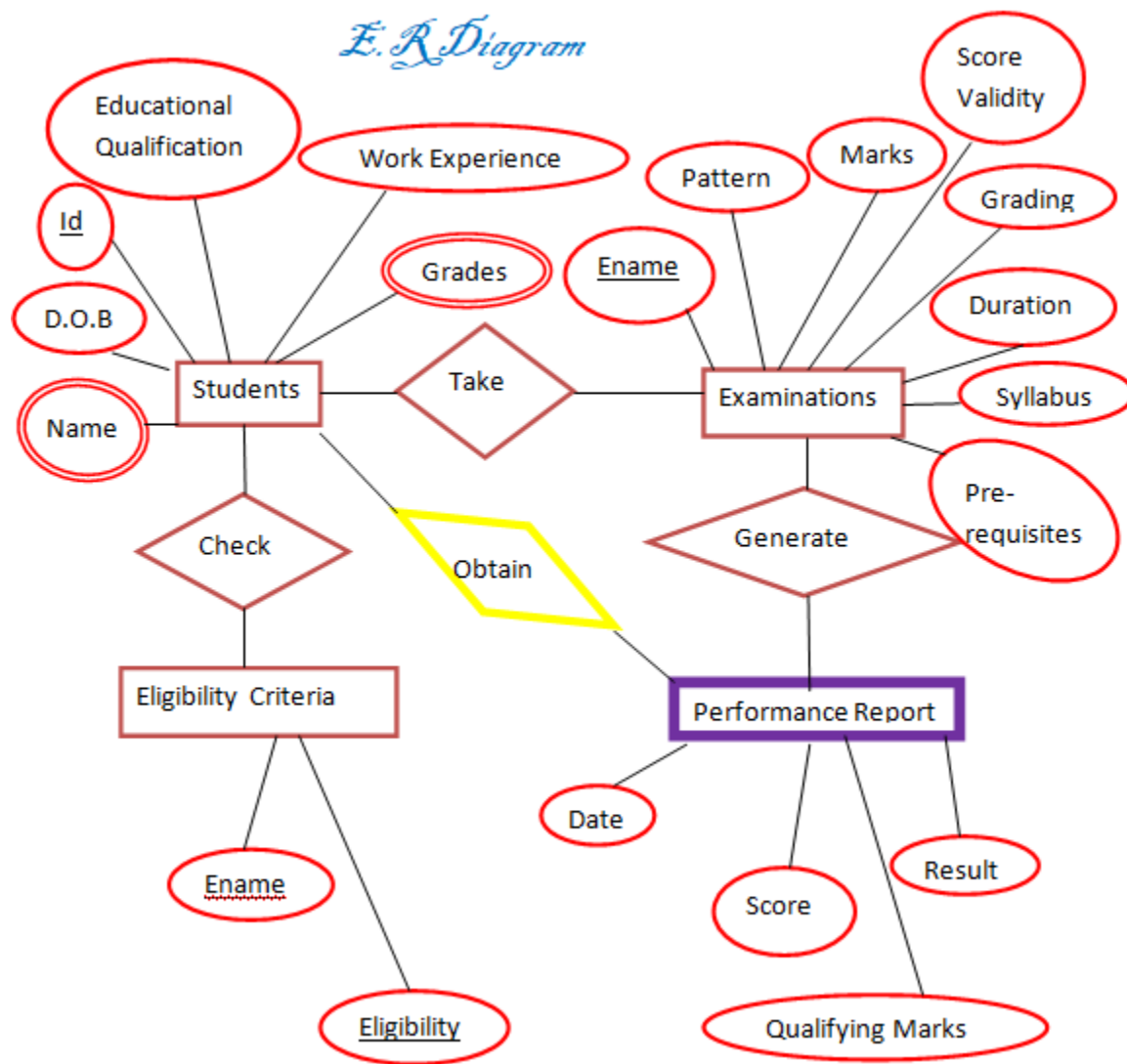
3. **Eligibility Criteria:**

- a) **Eligibility:** *It checks whether a student is eligible for the exam or not. (Varchar)*
- b) **Ename:** *It contains the name of the exam. (Char)*

4. **Performance Report:(weak entity set)**

- a) **Date:** *It stores the date of publication of the result. (Date)*
- b) **Score:** *It consists of the score obtained by the student. (Number)*

- c) Qualifying Marks: It contains the minimum marks required to qualify the exam. (**Number**)
 - d) Result: It stores the final result (pass/fail) of the student. (**Char**)
5. Take: It's a relationship set between Students set and Examinations set.
 6. Check: It's a relationship set between Students set and Eligibility Criteria set.
 7. Generate: It's a relationship set between Examinations set and Performance Report set.
 8. Obtain: It's a weak-entity relationship set between Students set and Performance Report set.



Key Constraints

Alter the tables by enforcing various constraints like Primary Key, Foreign Key etc.

In Students table, Id is a Primary Key Constraint because it's unique; Name is a Not Null Constraint.

In Examinations table, Ename is the Primary key Constraint because it's unique.

In Performance Report, result is the Primary Key Constraint.

In Eligibility Criteria table, Ename and Eligibility are the Primary Key Constraints.

In Check table, Id is the Foreign Key Constraint.

In Take table, Id and Ename are the Foreign Key Constraints.

In Generate table, Ename and Result are the Foreign Key Constraints.

In Obtain table, Id and Result are the Foreign Key Constraints.

Logical Database Design (DDL Commands)

```
SQL> create Table Students(
  2 Name char(50),
  3 DOB DATE,
  4 Id varchar(20),
  5 Educational_Qualifications varchar(50),
  6 Work_Experience varchar(10),
  7 Grades varchar(50));
```

Table created.

```
SQL> desc Students;
```

Name	Null?	Type
NAME		CHAR(50)
DOB		DATE
ID		VARCHAR2(20)
EDUCATIONAL_QUALIFICATIONS		VARCHAR2(50)
WORK_EXPERIENCE		VARCHAR2(10)
GRADES		VARCHAR2(50)

```
SQL> create table Examinations(
```

```
  2 Ename char(50),
  3 Pattern char(50),
  4 Marks Number(5),
  5 Score_Validity varchar(20),
  6 grading varchar(50),
  7 duration varchar(30),
  8 syllabus varchar(50),
  9 pre_requisites varchar(50));
```

Table created.

```
SQL> desc Examinations;
```

Name	Null?	Type
ENAME		CHAR(50)
PATTERN		CHAR(50)
MARKS		NUMBER(5)
SCORE_VALIDITY		VARCHAR2(20)
GRADING		VARCHAR2(50)
DURATION		VARCHAR2(30)
SYLLABUS		VARCHAR2(50)
PRE_REQUISITES		VARCHAR2(50)


```
SQL> create table Performance_Report(
  2 Date_Of_Publishing Date,
  3 Score Number(10),
  4 Qualifying_Marks Number(10),
  5 Result varchar(20));
```

Table created.

```
SQL> desc Persformance_Report;
ERROR:
ORA-04043: object Persformance_Report does not exist
```

```
SQL> desc Performance_Report;
```

Name	Null?	Type
DATE_OF_PUBLISHING		DATE
SCORE		NUMBER(10)
QUALIFYING_MARKS		NUMBER(10)
RESULT		VARCHAR2(20)

```
SQL> create Table Eligibility_Criteria(
  2 Ename char(50),
  3 Eligibility char(20));
```

Table created.

```
SQL> desc Eligibility_Criteria;
```

Name	Null?	Type
ENAME		CHAR(50)
ELIGIBILITY		CHAR(20)

```
SQL> alter table Students ADD PRIMARY KEY(Id);
```

Table altered.

```
SQL> alter table Students Modify(name char
  2
```

```
SQL> alter table Students Modify(name char(50) CONSTRAINT nn_name NOT NULL);
```

Table altered.

```
SQL> DESC Students;
```

Name	Null?	Type
NAME	NOT NULL	CHAR(50)
DOB		DATE
ID	NOT NULL	VARCHAR2(20)
EDUCATIONAL_QUALIFICATIONS		VARCHAR2(50)
WORK_EXPERIENCE		VARCHAR2(10)
GRADES		VARCHAR2(50)

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```
SQL> alter table Examinations ADD PRIMARY KEY(Ename);
```

Table altered.

```
SQL> desc Examinations;
```

Name	Null?	Type
ENAME	NOT NULL	CHAR(50)
PATTERN		CHAR(50)
MARKS		NUMBER(5)
SCORE_VALIDITY		VARCHAR2(20)
GRADING		VARCHAR2(50)
DURATION		VARCHAR2(30)
SYLLABUS		VARCHAR2(50)
PRE_REQUISITES		VARCHAR2(50)

```
SQL> alter table Performance_Report ADD PRIMARY KEY(Result);
```

Table altered.

```
SQL> desc Performance_Report;
```

Name	Null?	Type
DATE_OF_PUBLISHING		DATE
SCORE		NUMBER(10)
QUALIFYING_MARKS		NUMBER(10)
RESULT	NOT NULL	VARCHAR2(20)

```
SQL> alter table Eligibility_Criteria ADD PRIMARY KEY(Ename,Eligibility);
```

Table altered.

```
SQL> desc Eligibility_Criteria;
```

Name	Null?	Type
ENAME	NOT NULL	CHAR(50)
ELIGIBILITY	NOT NULL	CHAR(20)

```
SQL> create table Take(Id varchar2(20), Ename char(50), Foreign KEY(Id) REFERENCES Students(Id), Foreign Key(Ename) REFERENCES Examinations(Ename));
```

Table created.

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```
SQL> create table Checks(Id varchar2(20), Eligibility char(20), Ename Char(50), Foreign Key(Id) REFERENCES Students(Id));

Table created.

SQL> create table Generate(Ename char(50), Result varchar(20), Foreign Key(Ename) REFERENCES Examinations(Ename), Foreign Key(Result) REFERENCES Performance_Report(Result));

Table created.

SQL> create table Obtain(Id varchar(20), Result varchar(20), Foreign Key(Id) REFERENCES Students(Id), Foreign Key(Result) References Performance_Report(Result));

Table created.

SQL> desc check;
ERROR:
ORA-00931: missing identifier


SQL> desc Checks;
Name                               Null?    Type
-----
ID                                  VARCHAR2(20)
ELIGIBILITY                        CHAR(20)
ENAME                             CHAR(50)

SQL> desc Take;
Name                               Null?    Type
-----
ID                                  VARCHAR2(20)
ENAME                             CHAR(50)

SQL> desc Generate;
Name                               Null?    Type
-----
ENAME                             CHAR(50)
RESULT                            VARCHAR2(20)

SQL> desc Obtain;
Name                               Null?    Type
-----
ID                                  VARCHAR2(20)
RESULT                            VARCHAR2(20)

SQL>
```



Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

Modification of database (DML Commands)

```
SQL> Insert into Students Values('Omkar','16-May-1999','CAT21-100','B.E','6 MONTHS','CLASS')
1 row created.

SQL> Insert into Students Values('Saurin','30-April-2000','CAT21-100','B.Com','6 MONTHS','CLASS')
Insert into Students Values('Saurin','30-April-2000','CAT21-100','B.Com','6 MONTHS','CLASS')
*
ERROR at line 1:
ORA-00001: unique constraint (SYSTEM.SYS_C004115) violated

SQL> Insert into Students Values('Saurin','30-April-2000','CAT21-99','B.Com','6 MONTHS','CLASS')
1 row created.

SQL> Insert into Students Values('Jiya','14-MAY-1999','CAT21-98','B.B.A','6 MONTHS','CLASS')
1 row created.

SQL> Insert into Students Values('Omkar','16-MAY-1999','GMAT20-100','B.E','6 MONTHS','CLASS')
1 row created.

SQL> Insert into Students Values('Karan','10-APRIL-1999','GMAT20-101','B.B.A','6 MONTHS','CLASS')
1 row created.
```

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```
SQL> Insert into Examinations values('CAT','Objective and Subjective',300,'1 year','Correct answer+3marks,Wrong answer-(-1marks)','3 hours','QA,VARC,DILR','Class-10:50%,Class-12:40%,Bachelors:40%');
```

1 row created.

```
SQL> select* from Students;
```

NAME	DOB
-----	-----
ID	EDUCATIONAL_QUALIFICATIONS
-----	-----
WORK_EXPER	GRADES
-----	-----
Omkar	16-MAY-99
CAT21-100	B.E
6 MONTHS	CLASS-10:94%,CLASS-12:97.3%,B.E:9.8

Saurin	30-APR-00
CAT21-99	B.Com
6 MONTHS	CLASS-10:94%,CLASS-12:96.8%,B.Com:9.8

NAME	DOB
-----	-----
ID	EDUCATIONAL_QUALIFICATIONS
-----	-----
WORK_EXPER	GRADES
-----	-----
Jiya	14-MAY-99
CAT21-98	B.B.A
6 MONTHS	CLASS-10:94%,CLASS-12:98.9%,B.B.A:10

Omkar	16-MAY-99
GMAT20-100	B.E

NAME	DOB
-----	-----
ID	EDUCATIONAL_QUALIFICATIONS
-----	-----
WORK_EXPER	GRADES
-----	-----
6 MONTHS	CLASS-10:94%,CLASS-12:98.9%,B.E:9.8

Karan	10-APR-99
GMAT20-101	B.B.A
6 MONTHS	CLASS-10:96%,CLASS-12:99.9%,B.B.A:10

Title: Competitive Exams Related Information Management System

ENAME

MARKS

GRADING

SYLLABUS

CAT

PATTERN

MARKS

GRADING

SYLLABUS

300

PATTERN

MARKS

GRADING

SYLLABUS

Correct answer-+3marks,Wrong answer-(-1marks)

```
1 row created.
```

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DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
3 hours		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
QA, VARC, DILR		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
Class-10:50%,Class-12:40%,Bachelors:40%		
ENAME		

Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
GMAT		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
Objective and Subjective		800
ENAME		

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Title: Competitive Exams Related Information Management System

ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
5 years	Correct answer-variable,Wrong answer-(0marks)	
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
3 hours		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
QA, VARC, DILR		
ENAME		

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Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
Class-10:50%,Class-12:40%,Bachelors:40%		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
UPSC-CSE		
ENAME		

Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
Objective and Subjective		2025
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
1 year	Correct answer-variable,Wrong answer-(0/-1marks)	
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
29 hours		
ENAME		

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Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

QA/IR,VARC,GS,OPTIONAL	

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

Class-10:50%,Class-12:40%,Bachelors:40%	

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

ENAME	

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Name: V.A.V.V.OMKAR

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ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
TOEFL		
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
Objective and Subjective		120
ENAME		
PATTERN		MARKS
SCORE_VALIDITY	GRADING	
DURATION		
SYLLABUS		
PRE_REQUISITES		
2 years	Correct answer-variable,Wrong answer-(0marks)	
ENAME		

Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

4 hours 20 minutes	

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

VARC	

ENAME	

PATTERN	MARKS

SCORE_VALIDITY	GRADING

DURATION	

SYLLABUS	

PRE_REQUISITES	

Class-10:50%,Class-12:40%,Bachelors:40%	

ENAME	

Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

```
SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'PASSED','CAT21-100');
1 row created.

SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'PASSED','CAT21-99');
Insert into Performance_Report values('28-DECEMBER-2021',280,100,'PASSED','CAT21-99')
*
ERROR at line 1:
ORA-00001: unique constraint (SYSTEM.SYS_C004118) violated

SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'QUALIFIED','CAT21-99');
1 row created.

SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'PASS','CAT21-98');
1 row created.

SQL> SELECT*FROM PERFORMANCE_REPORT;
```

DATE_OF_P	SCORE	QUALIFYING_MARKS	RESULT	ID
28-DEC-21	280	100	PASSED	CAT21-100
28-DEC-21	280	100	QUALIFIED	CAT21-99
28-DEC-21	280	100	PASS	CAT21-98

```
SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'QUALIFIED','CAT21-99');
1 row created.

SQL> Insert into Performance_Report values('28-DECEMBER-2021',280,100,'PASS','CAT21-98');
1 row created.

SQL> SELECT*FROM PERFORMANCE_REPORT;
```

DATE_OF_P	SCORE	QUALIFYING_MARKS	RESULT	ID
28-DEC-21	280	100	PASSED	CAT21-100
28-DEC-21	280	100	QUALIFIED	CAT21-99
28-DEC-21	280	100	PASS	CAT21-98

```
SQL> Insert into Obtain values('CAT21-98','PASSED');
1 row created.

SQL> Insert into Obtain values('CAT21-99','PASSED');
1 row created.

SQL> Insert into Obtain values('CAT21-100','PASSED');
1 row created.
```

```
SQL> Insert into Eligibility_Criteria values('CAT','BACHELORS DEGREE');
1 row created.

SQL> Insert into Eligibility_Criteria values('GMAT','BACHELORS DEGREE');
1 row created.

SQL> Insert into Eligibility_Criteria values('TOEFL','BACHELORS DEGREE');
1 row created.

SQL> Insert into Eligibility_Criteria values('UPSC-CSE','BACHELORS DEGREE');
1 row created.

SQL> Insert into Eligibility_Criteria values('GRE','BACHELORS DEGREE');
1 row created.
```

```
SQL> SELECT* FROM ELIGIBILITY_CRITERIA;
```

ENAME	ELIGIBILITY
CAT	BACHELORS DEGREE
GMAT	BACHELORS DEGREE
TOEFL	BACHELORS DEGREE
UPSC-CSE	BACHELORS DEGREE
GRE	BACHELORS DEGREE

DBMS ASSIGNMENT-1

Title: Competitive Exams Related Information Management System

```
SQL> INSERT INTO TAKE VALUES('GMAT20-100','GMAT');
```

1 row created.

```
SQL> INSERT INTO TAKE VALUES('GMAT20-101','GMAT');
```

1 row created.

```
SQL> SELECT* FROM TAKE;
```

ID	ENAME
CAT21-100	CAT
CAT21-99	CAT
CAT21-98	CAT
GMAT20-100	GMAT
GMAT20-101	GMAT

```
SQL> INSERT INTO TAKE VALUES('CAT21-100','CAT');
```

1 row created.

```
SQL> INSERT INTO TAKE VALUES('CAT21-99','CAT');
```

1 row created.

```
SQL> INSERT INTO TAKE VALUES('CAT21-98','CAT');
```

1 row created.

```
SQL> SELECT* FROM TAKE;
```

ID	ENAME
CAT21-100	CAT
CAT21-99	CAT
CAT21-98	CAT

```
SQL> SELECT* FROM CHECKS;
```

ID	ELIGIBILITY
CAT21-100	CAT
CAT21-99	CAT
CAT21-98	CAT
GMAT20-100	GMAT
GMAT20-101	GMAT

Roll no-1602-18-737-086

Name: V.A.V.V.OMKAR

```
SQL> INSERT INTO CHECKS VALUES('CAT21-100','CAT','B.E');  
1 row created.  
  
SQL> INSERT INTO CHECKS VALUES('CAT21-99','CAT','B.Com');  
1 row created.  
  
SQL> INSERT INTO CHECKS VALUES('CAT21-98','CAT','B.B.A');  
1 row created.  
  
SQL> INSERT INTO CHECKS VALUES('GMAT20-100','GMAT','B.E');  
1 row created.  
  
SQL> INSERT INTO CHECKS VALUES('GMAT20-101','GMAT','B.B.A');  
1 row created.
```