AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

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Assignment Title: **Student Database Management System**		
Assignment No: **02**		Date of Submission: **27 December 2020**
Course Title: **Introduction to Database**		
Course Code: **CSC 2107**		Section: **I**
Semester: **Fall**	2020 -21	Course Teacher: **Rifat Tasnim Anannya**

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Group Name/No.: **N/A**

No	Name	ID	Program	Signature
1	KAUSHIK, MEHEDI MAHMUD	19-39780-1	CoE	
2	AKTER,TAHMINA	19-39934-1	CSE	
3	SHAHRIAR IBNE YUSUF	19-40710-1	CSE	
4	FARIS, MIR	20-42241-1	CSE	
5				
6				
7				
8				
9				
10				

Faculty use only		
FACULTYCOMMENTS	**Marks Obtained**	
	Total Marks	

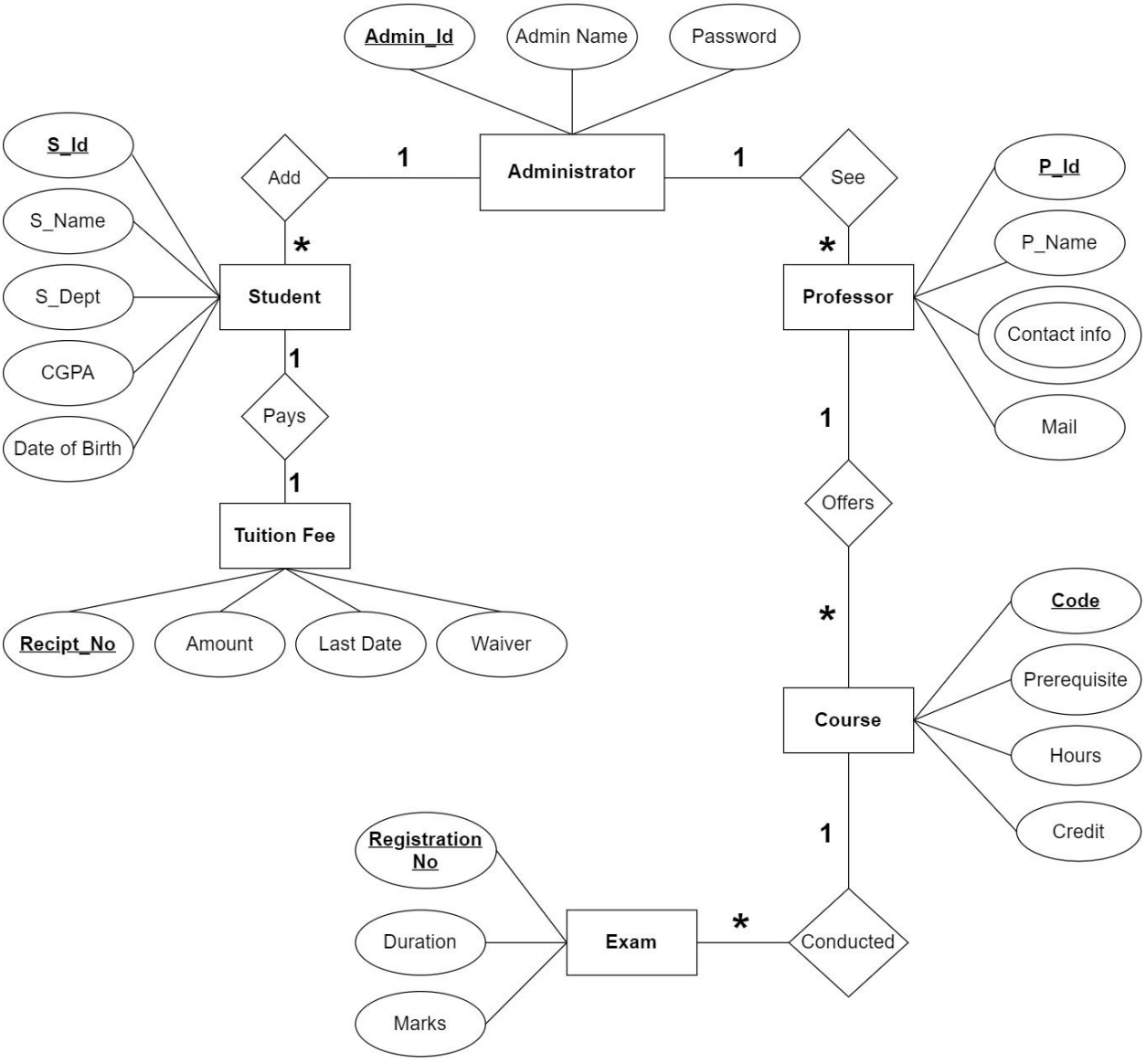
Student Database Management System

Student database management system is very much important nowadays to run any administration smoothly. It requires many entities to do them profoundly.

- In the student database management system, the main occurrence happens in administration where an administrator can look after both students' and professors' information. Every administrator is uniquely identified by admin id. Their name and password must be recorded as well.
- The administrator can add many students and see all the different professors in the portal.
- Every student has a unique student id. Their name, department, achieved CGPA and date of birth are also recorded.
- Each student pays for the tuition fee.
- For tuition fees, a unique receipt number, amount of fees, waiver and the last date of paying the fees must be recorded.
- The administration assigns some experienced professors. Each department contains huge number of faculties. They are identified by their id, name and mail. Their contact information is also provided for urgent communication.
- Many courses are offered by each professor.
- Each course contains unique code and prerequisite for selecting the course.
- The credit of each courses is also recorded with the class hours.
- For every course, many exams are conducted. When the students get their courses, they start studying and appears in the examination.
- Every exam has a unique registration number.
- The duration and marks distribution are also mentioned in the examination paper.

So, understanding and recording the given information is a very lengthy but effective process for running a student database management system.

ER Diagram for
Student Database Management System



Normalization

Relation-1

Pays - (S_id, S_Name, S_Dept, CGPA, Date of Birth, Recipt_No, Amount, Last Date, Wavier)

1NF - No multivalued attribute

2NF - S_id, S_Name, S_Dept, CGPA, Date of Birth

Recipt_No, Amount, Last Date, Wavier

3NF - S_id, S_Name, S_Dept, CGPA, Date of Birth

Recipt_No, Last Date

Cash_id, Amount, Wavier

Table for Pays –

1. S_id, S_Name, S_Dept, CGPA, Date of Birth, Recipt_No
2. Recipt_No, Last Date, Cash_id
3. Cash_id, Amount, Wavier

Relation-2

Add - (S_id, S_Name, S_Dept, CGPA, Date of Birth, Admin_id, Admin Name, Password)

1NF - No Multivalued Attribute

2NF- S_id, S_Name, S_Dept, CGPA, Date of Birth

Admin_id, Admin Name, Password

3NF- No transitive dependency

Table for Add-

1. S_id, S_Name, S_Dept, CGPA, Date of Birth, Admin_id
2. Admin_id, Admin Name, Password

Relation-3

See - (P_id, P_Name, Contact info, Mail, Admin_id, Admin Name, Password)

1NF - Contact info is a multivalued attribute

2NF - P_id, P_Name, Contact info, Mail
Admin_id, Admin Name, Password

3NF- No transitive dependency

Table for See-

1. P_id, P_Name, Mail, Admin_id
2. Admin_id, Admin Name, Password
3. P_id, Contact info - Composite Primary Key

Relation-4

Offers - (Code, Prerequisite, Hours, Credit, P_id, P_Name, Contact info, Mail)

1NF - Contact info is a multivalued attribute

2NF - Code, Prerequisite, Hours, Credit

P_id, P_Name, Contact info, Mail

3NF- Code, Prerequisite

C_id, Hours, Credit

P_id, P_Name, Contact info, Mail

Table for Offers-

1. Code, Prerequisite, P_id, C_id
2. C_id, Hours, Credit
3. P_id, P_Name, Mail
4. P_id, Contact info - Composite Primary Key

Relation-5

Conducted - (Registration no, Duration, Marks, Code, Prerequisite, Hours, Credit)

1NF - No multivalued attribute

2NF - Registration no, Duration, Marks

Code, Prerequisite, Hours, Credit

3NF - Registration no, Duration, Marks

Code, Prerequisite

C_id, Hours, Credit

Table for Conducted-

1. Registration no, Duration, Marks, Code
2. Code, Prerequisite, C_id
3. C_id, Hours, Credit

Final Table List

1. S_id, S_Name, S_Dept, CGPA, Date of Birth, Recipt_No, Admin_id
2. Recipt_No, Last Date, Cash_id
3. Cash_id, Amount, Wavier
4. Admin_id, Admin Name, Password
5. P_id, P_Name, Mail, Admin_id
6. P_id, Contact info - Composite Primary Key
7. Code, Prerequisite, P_id, C_id
8. C_id, Hours, Credit
9. Registration no, Duration, Marks, Code

Structure of Tables

1. Student Table

Object Type **TABLE** Object **STUDENT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	S_ID	Number	-	10	0	1	-	-	-
	S_NAME	Varchar2	20	-	-	-	✓	-	-
	S_DEPT	Varchar2	20	-	-	-	✓	-	-
	CGPA	Number	-	2	1	-	✓	-	-
	DATE_OF_BIRTH	Date	7	-	-	-	✓	-	-
	RECIPT_NO	Number	-	10	0	-	✓	-	-
	ADMIN_ID	Number	-	10	0	-	✓	-	-

1 - 7

2. Tuition Table

Object Type **TABLE** Object **TUITION**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TUITION	RECIPT_NO	Number	-	10	0	1	-	-	-
	LAST_DATE	Date	7	-	-	-	✓	-	-
	CASH_ID	Number	-	10	0	-	✓	-	-

1 - 3

3. New_Cash Table

Object Type **TABLE** Object **NEW_CASH**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
NEW_CASH	CASH_ID	Number	-	10	0	1	-	-	-
	AMOUNT	Number	-	8	0	-	✓	-	-
	WAVIER	Number	-	8	0	-	✓	-	-

1 - 3

4. Administration Table

Object Type **TABLE** Object **ADMINISTRATOR**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ADMINISTRATOR	ADMIN_ID	Number	-	10	0	1	-	-	-
	ADMIN_NAME	Varchar2	20	-	-	-	✓	-	-
	PASSWORD	Number	-	4	0	-	✓	-	-

1 - 3

Application Express 2.1.0.00.39

Language: en-us

5. Professor Table

Object Type **TABLE** Object **PROFESSOR**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PROFESSOR	P_ID	Number	-	10	0	1	-	-	-
	P_NAME	Varchar2	20	-	-	-	✓	-	-
	MAIL	Varchar2	30	-	-	-	✓	-	-
	ADMIN_ID	Number	-	10	0	-	✓	-	-

1 - 4

Application Express 2.1.0.00.39

Language: en-us

6. Prof_Cont Table

Object Type **TABLE** Object **PROF_CONT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PROF_CONT	P_ID	Number	-	10	0	1	-	-	-
	CONTACT_INFO	Number	-	20	0	2	-	-	-

1 - 2

Application Express 2.1.0.00.39

Language: en-us

7. Course Table

Object Type **TABLE** Object **COURSE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
COURSE	CODE	Number	-	10	0	1	-	-	-
	PREREQUISITE	Varchar2	10	-	-	-	✓	-	-
	P_ID	Number	-	10	0	-	✓	-	-
	C_ID	Number	-	10	0	-	✓	-	-

1 - 4

8. New_Credit Table

Object Type **TABLE** Object **NEW_CREDIT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
NEW_CREDIT	C_ID	Number	-	10	0	1	-	-	-
	HOURS	Number	-	1	0	-	✓	-	-
	CREDIT	Number	-	1	0	-	✓	-	-

1 - 3

9. Exam Table

Object Type **TABLE** Object **EXAM**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EXAM	REG_NO	Number	-	10	0	1	-	-	-
	DURATION	Number	-	2	1	-	✓	-	-
	MARKS	Number	-	3	0	-	✓	-	-
	CODE	Number	-	10	0	-	✓	-	-

1 - 4

Value Insertion

Here, values are inserted into the table following the sequence of 4>3>2>1>5>6>8>7>9

The tables are shown below-

1. Administrator Table

ADMIN_ID	ADMIN_NAME	PASSWORD
101	Rana	3636
102	Kumar	1045
103	Tahia	6457
104	Abdul	1249
105	Fahmida	8465

5 rows returned in 0.02 seconds CSV Export

2. New_Cash Table

CASH_ID	AMOUNT	WAVIER
321	102500	2500
322	87500	1900
323	140750	3580
324	50800	800
325	120050	10500

5 rows returned in 0.00 seconds CSV Export

3. Tuition Table

RECIPT_NO	LAST_DATE	CASH_ID
344062	30-DEC-20	322
450402	01-JAN-21	321
869341	04-JAN-21	325
215677	05-JAN-21	323
203051	07-JAN-21	324

5 rows returned in 0.00 seconds CSV Export

4. Student Table

S_ID	S_NAME	S_DEPT	CGPA	DATE_OF_BIRTH	RECIPT_NO	ADMIN_ID
19397801	Kasuhik	CoE	4	20-FEB-98	203051	103
19399341	Tahmina	CSE	3.6	30-JAN-99	869341	104
1940710	Shahriar	CSE	3.8	14-MAR-98	450402	101
20422411	Faris	CSE	3.5	07-JUL-00	215677	104

4 rows returned in 0.01 seconds CSV Export

5. Professor Table

P_ID	P_NAME	MAIL	ADMIN_ID
130029	Mr. Niloy	niloy23@gmail.com	103
130045	Ms. Tasnim	tasnim57@gmail.com	101
130204	Ms. Bari	abdul.bari@gmail.com	102
130050	Mrs. Nilu	nilufer45@gmail.com	105

4 rows returned in 0.00 seconds CSV Export

6. Prof_cont Table

P_ID	CONTACT_INFO
130029	1728475638
130045	1898364774
130204	1399873020
130050	1632098894

4 rows returned in 0.00 seconds CSV Export

7. New_Credit Table

C_ID	HOURS	CREDIT
1203	5	3
1213	3	1
1013	3	3
1107	2	1

4 rows returned in 0.00 seconds CSV Export

8. Course Table

CODE	PREREQUISITE	P_ID	C_ID
204	CoE-205	130029	1203
907	EEE-112	130045	1213
108	CSE-330	130204	1013
503	CSE-340	130050	1107

4 rows returned in 0.00 seconds CSV Export

9. Exam Table

REG_NO	DURATION	MARKS	CODE
44392	1.5	-	204
77345	2.5	60	907
11946	3	100	108
88372	1	30	503

4 rows returned in 0.00 seconds CSV Export

Query Questions

Single Row

1. Display Student name and CGPA joined together, length of the Student name, and numeric position of the letter I in the student name, for all students who are in CSE

2. Display the rounded CGPA considering only one digit after point aliasing 'Rounded CGPA' and show age of the students in months till 20 August 2000 aliasing 'Age in 20 Aug 2000'.

Group Function

3. Display maximum Hours for every credit from new_credit table and sort by credit.

4. Display the department and maximum CGPA for each department where no student from CoE department is included.

Subquery

5. Display students whose department is the same as that of ID 20422411 and whose CGPA is greater than that of ID 19399341. Sort the results on CGPA from highest to lowest.

6. Display students whose waiver is less than the average waiver of all department students.

Join

7. Display S_Name, Amount, Waiver where department is CSE and admin_id is equal to 104 using equi join.

8. Display Exam Duration, Marks, Prerequisite where marks are less than 100 using outer join.

Sequence

9. Create a sequence named 'Test' which starts from 20 and finishes at 100 and it increments by 3 where in the future a cycle will be inserted having no minimum value and no cache.

View

10. Create a view named 'New_Admin' where a person can only read Admin_name and Admin_ID column.