Data Design And Analysis

Design and Implementation of Relational Database for ISMT College

TASK 2 (A)
Software Requirement Specification (SRS)

- Requirements are those properties, constraints or functions that must be met to fulfill clients needs
- Requirement document provides overview of outcome of system development and its requirements and without providing technical details.
- Explains **what** system should do rather ***how*** *it should do*.
- Explains purpose of system to be developed, its context, costs, future requirement, time scales and how the system will look like.
- Analysis of requirement are gathered from critical study using several fact finding methods.

Fact Finding Methods

- Fact finding is process of gathering required information for specific purpose.

Some Fact Finding Methods

- Interview
- Questionnaires
- Record View
- Observation and document checking

Interview

- Interview is planned meeting with individual or group to collect required information

Questionnaires

- Set of questions is distributed among stake holders.
- Information is analyzed based on the response in questionnaire.

Record View

- Different records such as attendance sheet, payment receipt, user logs, history data are analyzed.

Observation

- Information is gathered by observing the area, document, website, work environment etc.

Observation Sheet

Observe Sheet

S.N.	Observe object	What was observed	Observe result
1.	Attendance Sheet	How student are managed in class	Each student has unique id
2.	Prospectus	How student are enrolled	College different Programs, students are enrolled in different program
3.	Website	Grading system	Each student is graded based on their unit assignment result.
4.	Receipt	How academic, admissions, exam time table are managed.	College is semester system based.

Relational Requirement

S.N.	Entity	Purpose
1.	tblStudent	To Store student's information
2.	tblGuardian	To store Guardian's information
3.	tblDepartment	To store department's information
4.	tblGrade	To Store Grade information
5.	tblStudying	To store student's status information
6.	tblPrograms	To store Program's information
7.	tblEnroll_Type	To store enrollment type
8.	tblUnits	To store units information
9.	tblTeacher	To store teachers information
10.	tblSemester	To store semester information

Cost

S.N.	Task	Work Force Rate	Total Hour Required	Sub Total
1.	Analysis	7$ /HR	10 HR	70$
2.	Planning	15$ HR	15 HR	225$
3.	Design	10$ HR	10 HR	100$
4.	Implementation	8$ HR	50 HR	400$
5.	Maintenance	150$/YR	-	100$/YR
6.	Training	100$	-	100$
			Total	895$+150$/YR

Technical Requirement

Hardware Speciation (Recommended)

1. RAM - 4GB
2. Processor - Intel I3
3. Hard Disk - 320 GB

Software Specification

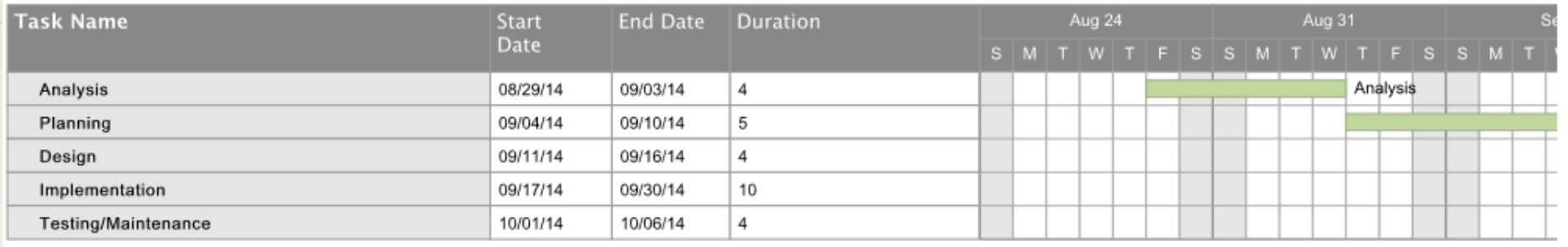
1. Operating System - Windows 7 or later
2. Applications-
    a. Microsoft SQL server 2008 or later (For database system)
    b. Visual Studio 10 or later (For UI)

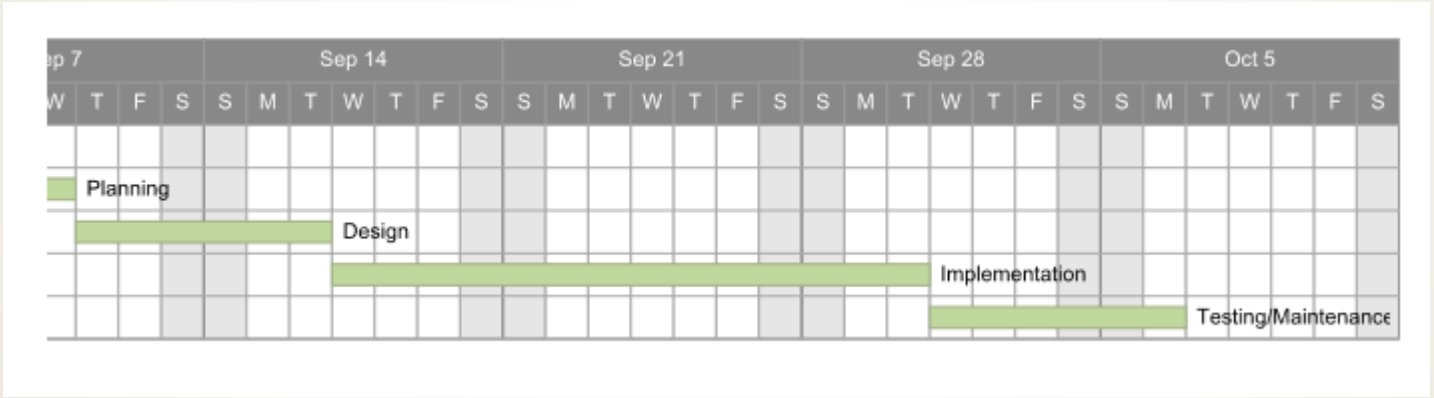
Future Requirement

- **Hard disk:** If space in current hard disk fills
- **Training:** User of the system in college needs training in time-to-time basis.
- **Annual Maintenance**

Time Scale

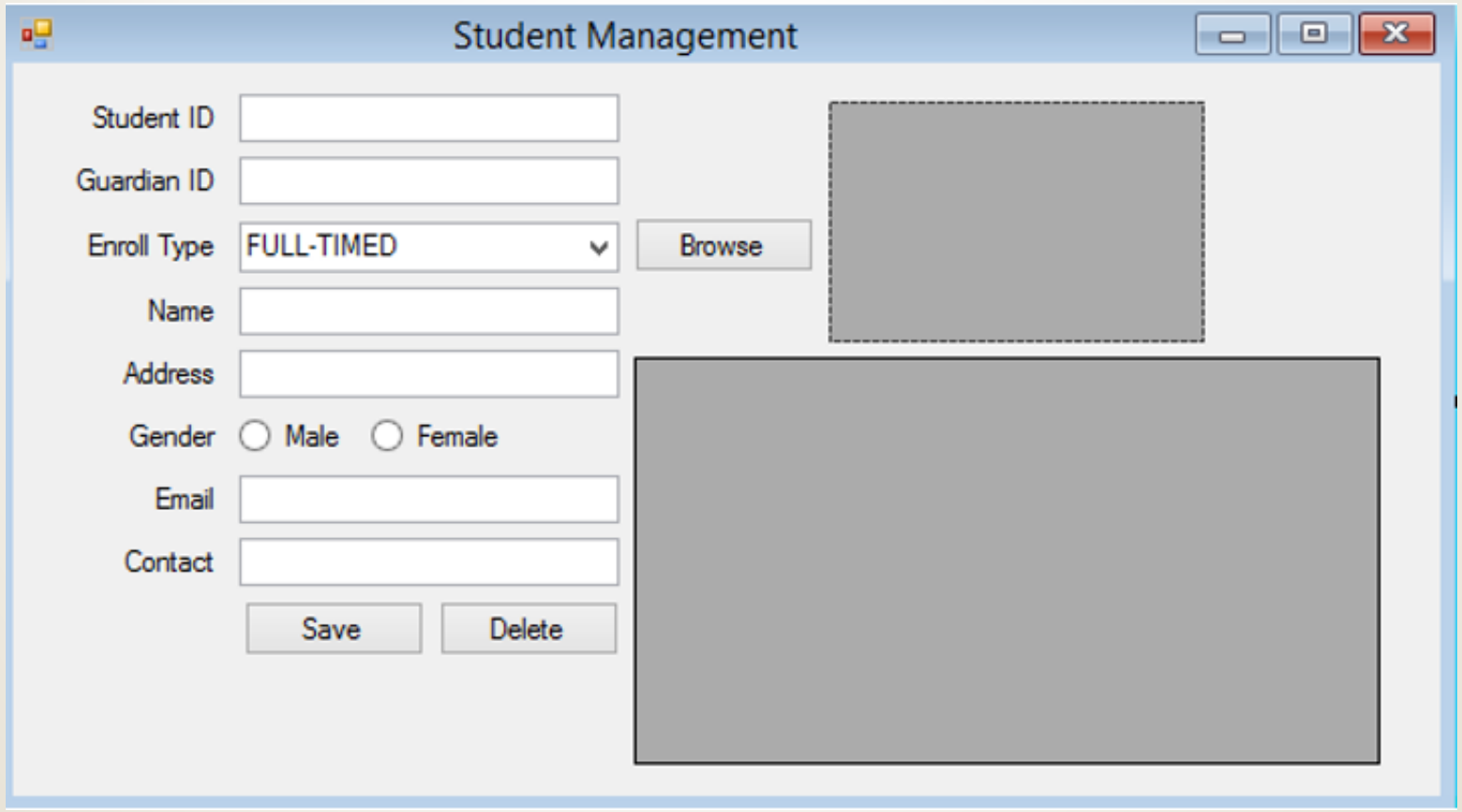
Task Name	Start Date	End Date	Duration
Analysis	08/29/14	09/03/14	4
Planning	09/04/14	09/10/14	5
Design	09/11/14	09/16/14	4
Implementation	09/17/14	09/30/14	10
Testing/Maintenance	10/01/14	10/06/14	4



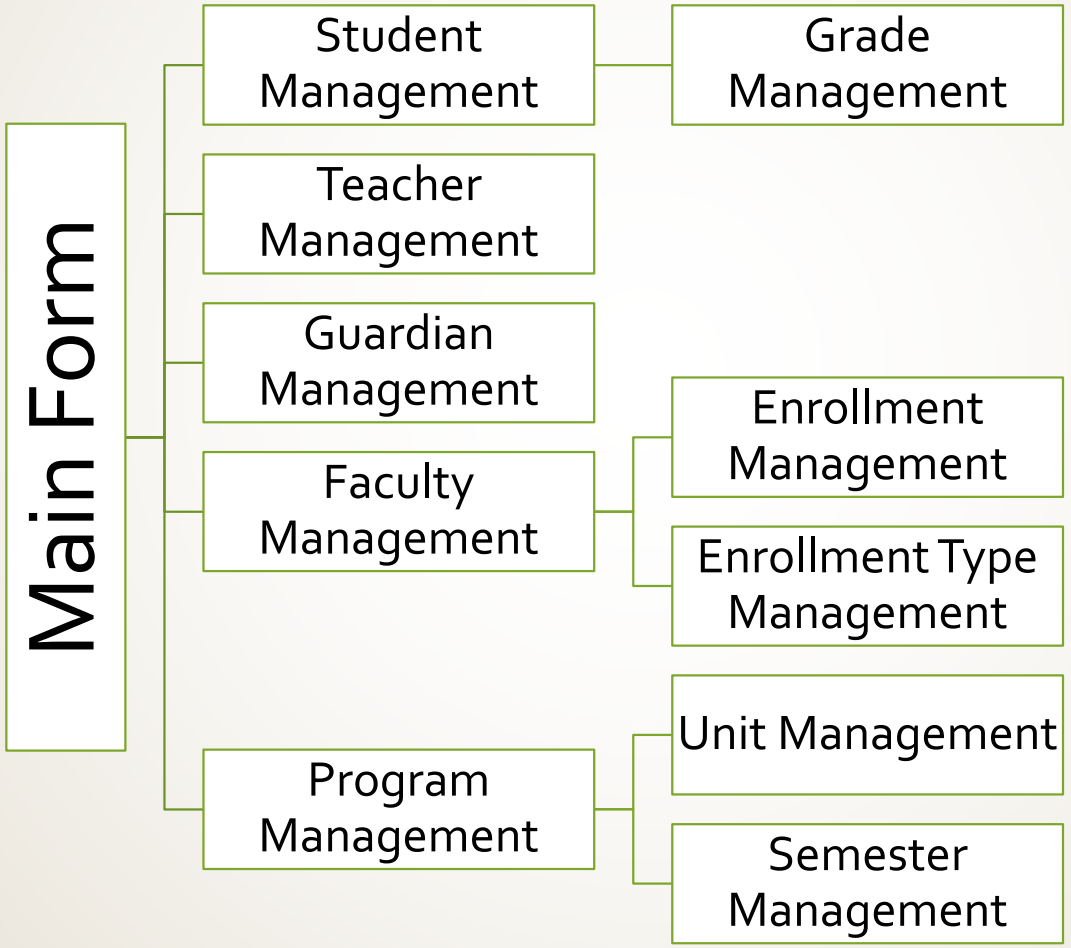


User Interface

- User interface is designed using visual studio windows form.



System requires these UI Forms



TASK 2 (B)
SQL (Structured Query Languages

- **DDL (Data Definition Language)**

It is basically used for creating, modifying and destroying a database and its objects.

- **DML (Data Manipulation Language)**

Allows manipulating data in database and database objected created with DDL. Includes inserting, updating and deleting data from database and its objects.

DDL

- **Create**

This is used for create new database or objects in database.

Create table tbl_Student (StudentID int not null , Name varchar(40),Address varchar (40));

StudentID	Name	Address

- **Alter**

This command is used for updating (modifying database elements)

Alter table tbl_student add constraint PK_ID primary key (StudentID);

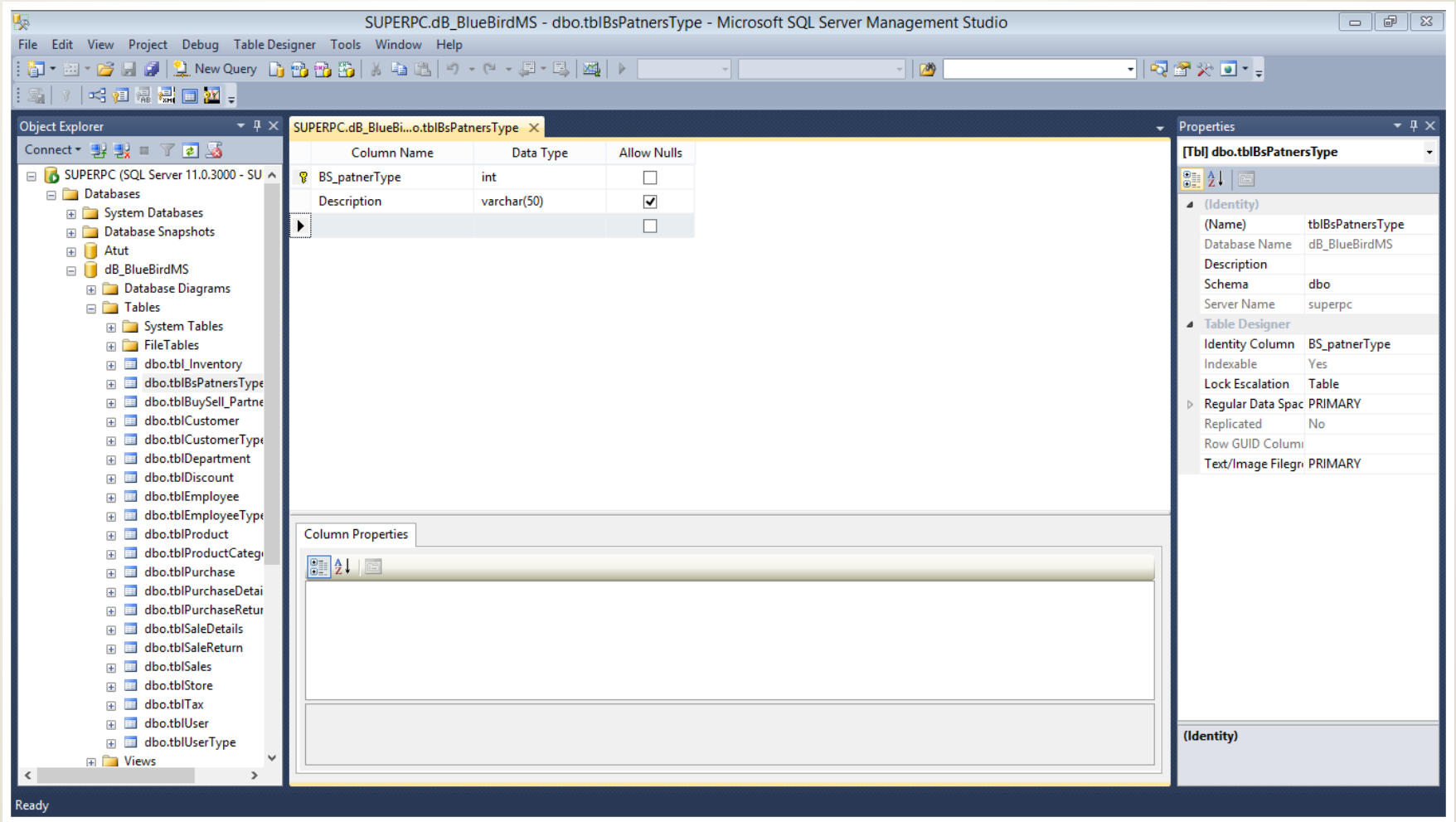
- **Drop**

Drop is used for either dropping (deleting) database or objects from it.

Drop table tbl_Student

SQL Server Management Studio

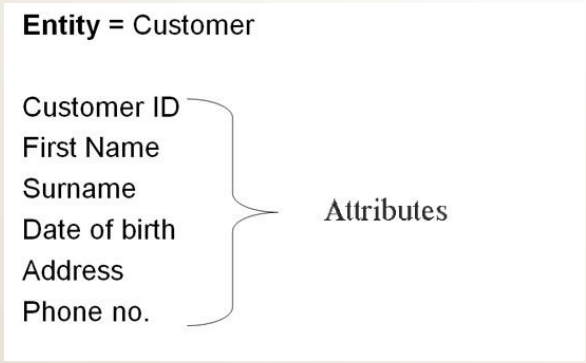
- SQL server management studio is a tool built for windows Computers that provides platform to manage databases.



Data type, Entity and Attributes

- Data type is something that describes what kind of data is that can hold.
- Entity is object that can relate to real world such as student, teacher, program etc.
- Meanwhile attributes are that property which describes entity.

S.N.	Data Type	Description
1	Int	Can hold -2147483648 to 2147483647
2	Char	Can hold 1 character
3	Nvarchar(size)	Can hold string no given size
4	Date	Can hold date
5	Image	Can hold binary data of up to 2 GB



Keys and Identifier

- Keys are individual or set of attributes that ensure any record within a table can be uniquely identified.
- Identifier is basically unique name of database, tables and attributes.

Domain and Referential Constraints

- Keys are individual or set of attributes that ensure any record within a table can be uniquely identified.

Building Relational Database for prepared design

S.N.	Entity	Attributes	Not Null	Data Type	Key
	tblStudent	guardianID	Yes	Int	Foreign
		Enroll_Type	Yes	nvarchar	Foreign
		StudentID	Yes	Int	Primary
		Name	Yes	Nvarchar	-
		Address	-	Nvarchar	-
		Gender	-	Nvarchar	-
		Photo	-	Nvarchar	-
		Email	-	Nvarchar	-
		Contact	-	Nvarchar	-
		Photo	-	Image	-

tblStudent

```
create table tblStudent
(
StudentID int not null,
GuardianID int not null,
Enroll_Type nvarchar(10) not null,
Name nvarchar(50) not null,
Address nvarchar(30),
Gender nvarchar(10),
Email nvarchar(MAX),
Contact nvarchar(15),
Photo image,
constraint PK_StudentID Primary Key (StudentID),
constraint FK_GuardiaID Foreign Key (GuardianID) references tblGuardian(GuardianID),
constraint FK_EnrollType Foreign Key (Enroll_Type) references tblEnroll_Type(Enroll_Type),
)
```

Domain constraint

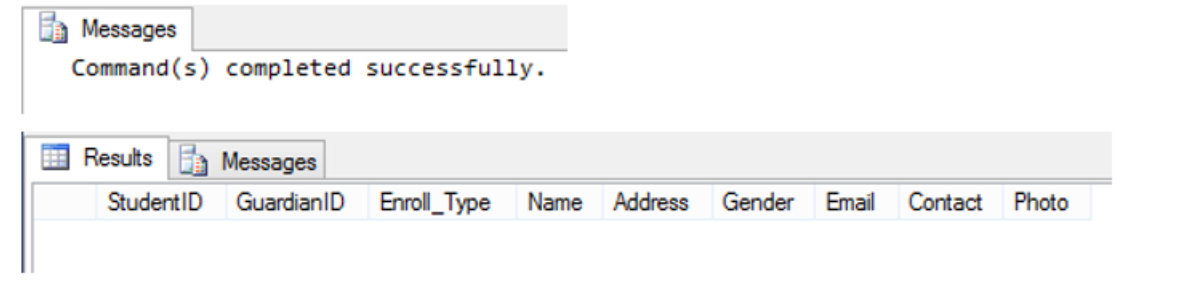
Data Type

Identities

Keys

Referential Constraint

Result



Questions

Thank You