

TITLE – BAHIRDAR UNIVERSITY DISTANCE

LEARNING

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CHAPTER ONE

1.1 INTRODUCTION

1.1.1 Background of Bahirdar University

Bahirdar University was established by merging two former higher education institutions; namely the Bahir Dar Polytechnic and Bahir Dar Teachers’ College. The Bahir Dar Polytechnic Institute, which has transformed itself into Technology and Textile institutes, was established in 1963 under the technical cooperation between the Government of USSR and the Imperial Government of Ethiopia.  The institute was a premier institute in producing technicians for the nation.

The two institutions of higher learning were integrated to form the Bahir Dar University following the Council of Ministers regulation no. 60/1999 GC. The University was inaugurated on May 6, 2000.  Bahir Dar University is now among the largest universities in the Federal Democratic Republic of Ethiopia, with more than 35,000 students in its 57 undergraduate and 39 graduate programs.  Bahir Dar University has four colleges, three institutes, three faculties and one school.  The academic units of the University include College of Science, College of Agriculture and Environmental Sciences, College of Medical and Health Sciences, College of Business and Economics, Institute of Technology, Institute of Textile, Garment and Fashion Design, Institute of Land Administration, Blue Nile Water Institute, Faculty of Humanities, Faculty of Social Sciences, Faculty of Education and Behavioral Sciences and School of Law.

Bahirdar university also gives a distance education for most of the departments given on the regular course.

1.2 Specific objective of the project

The following are specific objectives of our project:

* Implement validation techniques and checks that will help reduce the margin of error in operations.
* Provides adequate data backup facilities in order to ensure system restart even after a calamity.
* The system ensures consistency.
* Should arrive at and obtain a complete automation of all the registers as well as the registers, which are used for smooth working of the firm.
* The system is a reusable and extensible model/code.

1.3 General objectives of the project

The general objective of our project is to replaces the present manual system to web based system and stimulates the need of the student. The system also solves many problems besides to distance learning Such as:

* Providing appropriate learning materials and assignments for the student where ever they are.
* Let professor give materials and assignments where ever they are.
* Let administrator place in well manner.

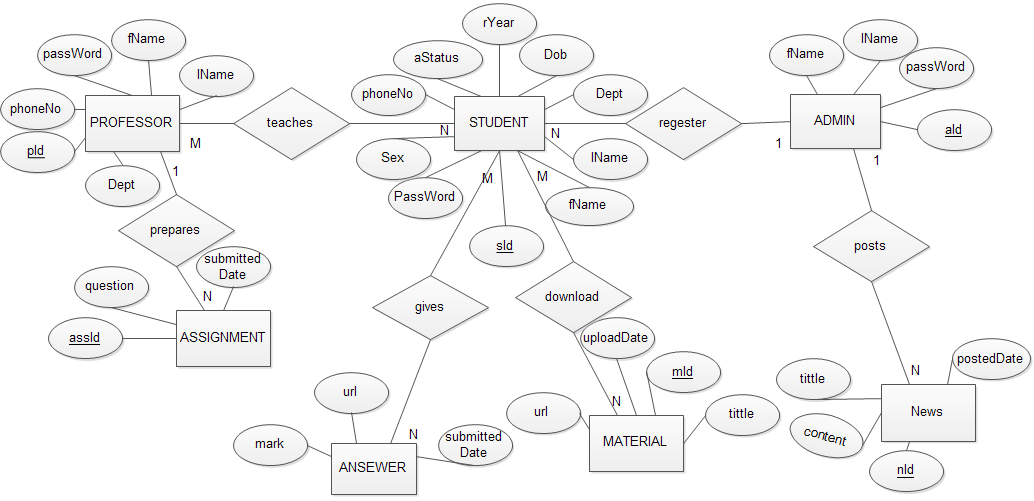
1.4 Scope of the Project

* The system will not let any user use basic operation unless a user has an account..
* The system lets any user to see information about bahir dar distance education (learning).
* The system lets to download any learning materials.

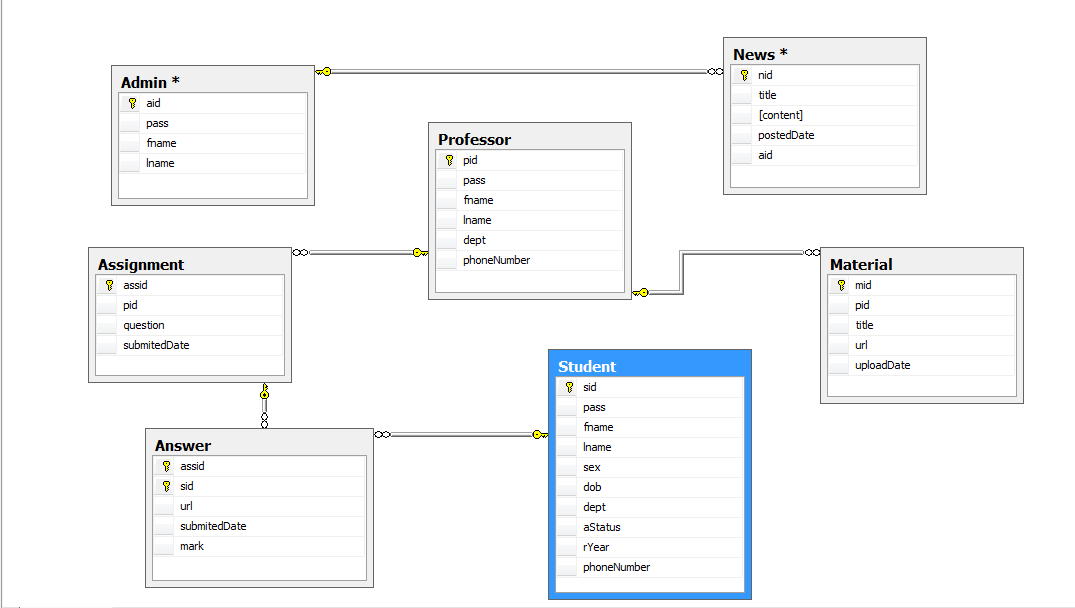
CHAPTER TWO

**2.1** FUNDAMENTAL DATABASE CONCEPT

2.1.1 ENTITIY RELATION DIAGRAM



2.1.2 DATABASE DIAGRAM



2.1.3 RATIONAL MAPPING

Student

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SId | password | FName | LName | Sex | dob | dept | rYear | aStatus | PhoneNo |

**Professor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| pid | password | fName | lName | dept | PhoneNo |

**Admin**

|  |  |  |  |
| --- | --- | --- | --- |
| aId | password | fName | Lname |

**Assignment**

|  |  |  |  |
| --- | --- | --- | --- |
| AssId | pid | question | submittedDate |

**Anawer**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AssId | SId | url | submittedDate | mark |

**Material**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| mId | pid | title | url | uploadDate |

**News**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| nId | aid | content | title | postedDate |

2.1.4 NORMALIZATION

A logical design method which minimizes data redundancy and reduces design flows

* Consists of applying various “normal” forms to the database design.
* The normal forms break down large tables into smaller subsets.

FIRST NORMAL FORM (1NF)

* Each attribute must be atomic
* No repeating columns within a row.
* No multi-valued columns.

SECOND NORMAL FORM (2NF)

* Each attribute must be functionally dependent on the primary key.
* Functional dependence - the property of one or more attributes that uniquely determines the value of other attributes.
* Any non-dependent attributes are moved into a smaller (subset) table.

THIRD NORMAL FORM (3NF)

* Remove transitive dependencies.
* Transitive dependence - two separate entities exist within one table.
* Any transitive dependencies are moved into a smaller (subset) table.

In this case all the table i.e. Student, Professor, Admin, Assignment, Answer, Material and News satisfies the normalization form up to third normal form.

* 1. DATABASE IMPLIMENTATION

2.2.1 Create database Name BDU\_DL and create Tables

CREATE DATABASE BDU\_DL;

USE BDU\_DL;

* We have Seven Possible Tables

CREATE TABLE Student

(

[sid] INT PRIMARY KEY IDENTITY,

pass VARCHAR(50) NOT NULL DEFAULT('bdu'),

fname VARCHAR(50) NOT NULL,

lname VARCHAR(50) NOT NULL,

sex VARCHAR(6) NOT NULL CHECK(sex IN ('Male','Female')),

dob DATE NOT NULL,

dept VARCHAR(50) NOT NULL,

aStatus INT NOT NULL CHECK(aStatus > 290),

rYear INT NOT NULL DEFAULT(YEAR(GETDATE())),

phoneNumber VARCHAR(50) NOT NULL

)

CREATE TABLE Professor

(

pid INT PRIMARY KEY IDENTITY,

pass VARCHAR(50) NOT NULL DEFAULT('bdu'),

fname VARCHAR(50) NOT NULL,

lname VARCHAR(50) NOT NULL,

dept VARCHAR(50) NOT NULL,

phoneNumber VARCHAR(50) NOT NULL

)

CREATE TABLE [Admin]

(

aid INT PRIMARY KEY IDENTITY,

pass VARCHAR(50) NOT NULL,

fname VARCHAR(50) NOT NULL,

lname VARCHAR(50) NOT NULL

)

CREATE TABLE Assignment

(

assid INT PRIMARY KEY IDENTITY,

pid INT FOREIGN KEY REFERENCES Professor,

question TEXT NOT NULL,

submitedDate DATETIME NOT NULL DEFAULT(GETDATE())

)

CREATE TABLE Material

(

mid INT PRIMARY KEY IDENTITY,

pid INT FOREIGN KEY REFERENCES Professor,

title VARCHAR(100) NOT NULL,

url VARCHAR(100) NOT NULL,

uploadDate DATETIME NOT NULL DEFAULT(GETDATE())

)

CREATE TABLE Answer

(

assid INT FOREIGN KEY REFERENCES Assignment,

[sid] INT FOREIGN KEY REFERENCES Student,

url VARCHAR(100) NOT NULL,

submitedDate DATETIME NOT NULL DEFAULT(GETDATE()),

mark float CHECK(mark >= 0 AND mark < 100),

CONSTRAINT pk\_answer PRIMARY KEY(assid,[sid])

)

CREATE TABLE News

(

nid INT PRIMARY KEY IDENTITY,

title VARCHAR(100) NOT NULL,

content VARCHAR(1000) NOT NULL,

postedDate DATETIME NOT NULL DEFAULT(GETDATE())

)

* We can drop the table

drop table Answer

drop table News

drop table Student

drop table Professor

drop table Material

drop table[Admin]

drop table Assignment

* + 1. We Populate the tables with sample data

INSERT INTO Student VALUES ('bdu','Tamiru','Zenebe','Male','1991-10-03','csed',400,2003,'+251920774461'),

('bdu','Teshager','Wossen','Male','1990-01- 09','csed',500,2003,'+251918000000'),

('bdu','Yosef','Kefale','Male','1992-10-13','csed',600,2003,'+251918010203'),

('bdu','Yodit','zegeye','Female','1992-10-13','csed',600,2003,'+251918010203')

select \*from Student

INSERT INTO Professor VALUES ('bdu','Tsegaw','T','csed','+251920020202'),

('bdu','Desta','B','csed','+251918040506'),

('bdu','Yibeltal','T','csed','+251918010103'),

('bdu','haileyesus','l','csed','+251918066666')

select \*from Professor

INSERT INTO [Admin] VALUES ('bdu','Ashagre','T')

select \*from [Admin]

INSERT INTO Assignment VALUES (1,'What is Normalization?',GETDATE()),

(2,'What is ajax?',GETDATE()),

(3,'What is javaScript?',GETDATE()),

(4,'What is firewall?',GETDATE())

select \*from Assignment

INSERT INTO Material VALUES (1,'Advanced database lab manual ','http//Adatabase.pdf',GETDATE()),

(2,'java exercise ','http//javaTutorial.pdf',GETDATE()),

(3,'exercise w3school ','http//w3school.com',GETDATE()),

(4,'decription ','http//ceasar cipher.com',GETDATE())

select \*from Material

INSERT INTO Answer VALUES (1,1,'http//answer.sql',GETDATE(),70.5),

(2,2,'http//answer.java',GETDATE(),50.0),

(3,3,'http//answer.js',GETDATE(),60.45),

(4,4,'http//answer.js',GETDATE(),90.45)

select \*from Answer

INSERT INTO News VALUES ('latest news',' For All Students you Can See Your Assignments Result On Your Acount! ',GETDATE())

select \*from News

* + 1. create view

--1

create view d\_learn

as

select nid,title,content from News

select \*from d\_learn

--2

create view m\_student

as

select fname,dept,aStatus,phoneNumber from Student

select \*from m\_student

* + 1. delete , update and searching files(data)

--delete a data from inserted data

delete from Assignment where assid = 4;

delete from Student where [sid] = 4;

-- update a data from inserted data

update News set title = 'update News ' where nid = 1 ;

update Material set title = 'jsp and servlet ex ' where mid = 2;

---searching

select \*from Professor where fname like '%w'

select \*from Student where fname like '%Tamiru%'

select \*from Student where fname like 'T%'

select \*from Student where fname like '%f'

* 1. ADVANCED DATABASE CONCEPT

2.3.1 Function

* Function is used to do a specific task from a database table.
* In this concept we write a function from our project.

-------1

create function displaySum( @sid int )

returns float

as

begin

declare @sum float;

select @sum =(select sum(mark)

from Answer where @sid =[sid]);

return @sum

end

select dbo.displaySum(1)

------2

create function displayAvg()

returns float

as

begin

declare @avg float;

set @avg =(select SUM(mark )/COUNT (mark) from Answer)

return @avg

end

select dbo.displayAvg()

* + 1. Store Procedure
* A stored procedure is an SQL server routine that is compiled and saved in the database. A stored procedure is to update, insert and delete the database table. From this concept we write a stored procedure.

-------------1

create procedure d\_Female\_highestMark(@sex varchar (6))

as

select s.[sid],fname from Student s,Answer a where s.[sid]= a.[sid]

and a.mark >=90

and s.sex=@sex

execute d\_Female\_highestMark 'Female'

---delete procedure

drop procedure not\_givingAssignment

----------2

create procedure not\_givingMaterial

as

select \* from Professor p

where p.pid not in (select m.pid from Material m)

execute not\_givingMaterial

-----------3

create procedure not\_givingAssignment

as

select \* from Professor p

where p.pid not in (select a.pid from Assignment a)

execute not\_givingAssignment

* + 1. Database Trigger
* The statement specifies the table on which a trigger is defined, the events for which the trigger executes, and the particular instructions for the trigger. The trigger is preventing from insertion, deletion and update times or before or after modification of a database table.

--------1

create trigger aca\_StatusChecker

on Student

for insert

as

begin

declare @Status int;

set @Status = (select aStatus from inserted)

if (@Status<290)

begin

raiserror('not allwed less than 290',16,1)

rollback transaction

end

end

--------2

create trigger n\_update\_mark

on Answer

for update

as

if(update(mark))

begin

Raiserror ('student mark does not modified ',16,1)

rollback transaction

end

* + 1. Database Security
* Implementing the security system and enforcing the required restrictions are the responsibility of the DBMS. The SQL language implements a security framework and provides a rather basic syntax used to specify security restrictions. SQL *grants* access to objects by users; it does not *restrict* access. In other words, a user cannot perform any action without first being granted the power to do so.
* SQL security is centered around three concepts or ideas:
* USERS

users, or more correctly user IDs, represent people or programs performing actions on

Objects in the database.

* **OBJECTS**

The SQL standards define specific objects in the database that users can manipulate.

* PRIVILAGES

The third leg of SQL security comprises privileges that allow users to manipulate objects. These privileges start with SELECT, INSERT, DELETE, and UPDATE for tables and views.

* GRANT

The basic GRANT statement is used to grant security privileges on database objects to specific users or, in some DBMS implementations, to groups.

And also SELECT,UPDATE and DELETE previlages are included

------create login

create login tmz with password ='abc'

create login jossy with password ='abc'

create login teshe with password ='abc'

-------create user

create user tmz for login tmz

create user jossy for login jossy

create user teshe for login teshe

------create role

create role Student

create role Professor

create role [Admin]

------create schema

create schema Student authorization tmz

create schema News authorization teshe

create schema [Admin] authorization jossy

-------create permission

grant select on [Admin] to tmz with grant option

grant select,insert,delete on News to Student

--cancel permission

revoke grant option for select on [Admin] from tmz CASCADE

--assign jossy to the member of Professor

sp\_addrolemember 'Professor','jossy'

--remove jossy from the member of Professor

sp\_droprolemember 'Professor','jossy'

* + 1. Database Transaction
* A Transaction is a mechanism for applying the desired modifications/operations (read, retrieval, write, insert or update and delete) to a database. It is evident in real life that the final database instance after a successful manipulation of the content of the database is the most up-to-date copy of the database. And used
* to prevents database failure
* actions performed sequentially

----1

create procedure updateValues(@oldPid int,@newPid int,@oldTitle varchar(100),@newTitle varchar(100),@oldAssiQ TEXT,@newAssiQ TEXT)

as

begin transaction t1

update Material set pid = @newPid where pid = @oldPid;

update Material set title = @newTitle where title = @oldTitle;

update Assignment set question = @newAssiQ where question like @oldAssiQ;

if @@ERROR <> 0

rollback transaction t1

commit

----2

create procedure updateUrl\_pass(@oldMUrl varchar(100),@newMUrl varchar(100),@oldAUrl varchar(100),@newAUrl varchar(100),@oldAPass varchar(50),@newAPass varchar(50))

as

begin transaction t2

update Material set url = @newMUrl where url = @oldMUrl;

update Answer set url = @newAUrl where url = @oldAUrl;

update [Admin] set pass = @newAPass where pass = @oldAPass;

if @@ERROR <> 0

rollback transaction t2

commit