

Information Technology Institute

Minia Branch

Web Development Track



Examination System Project

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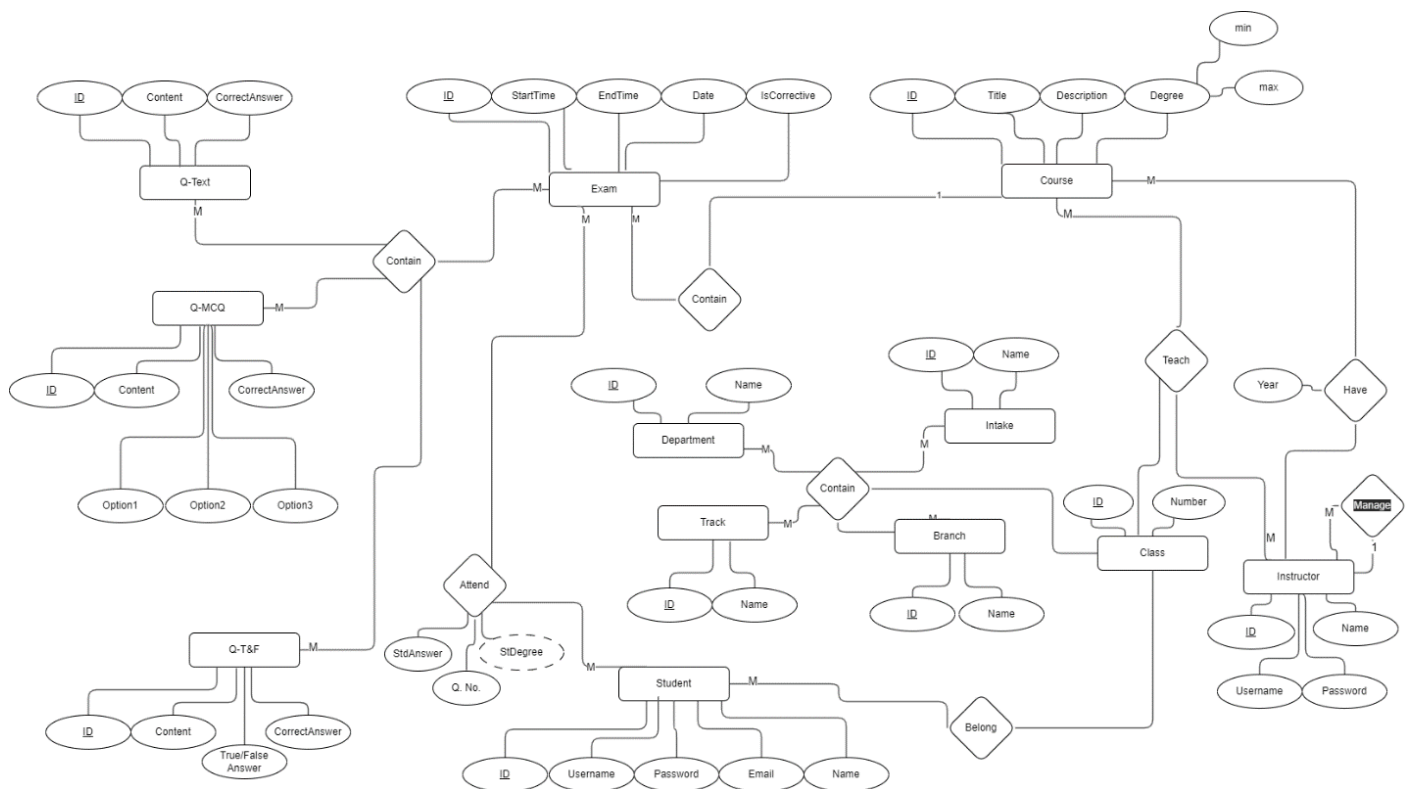
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System Requirement

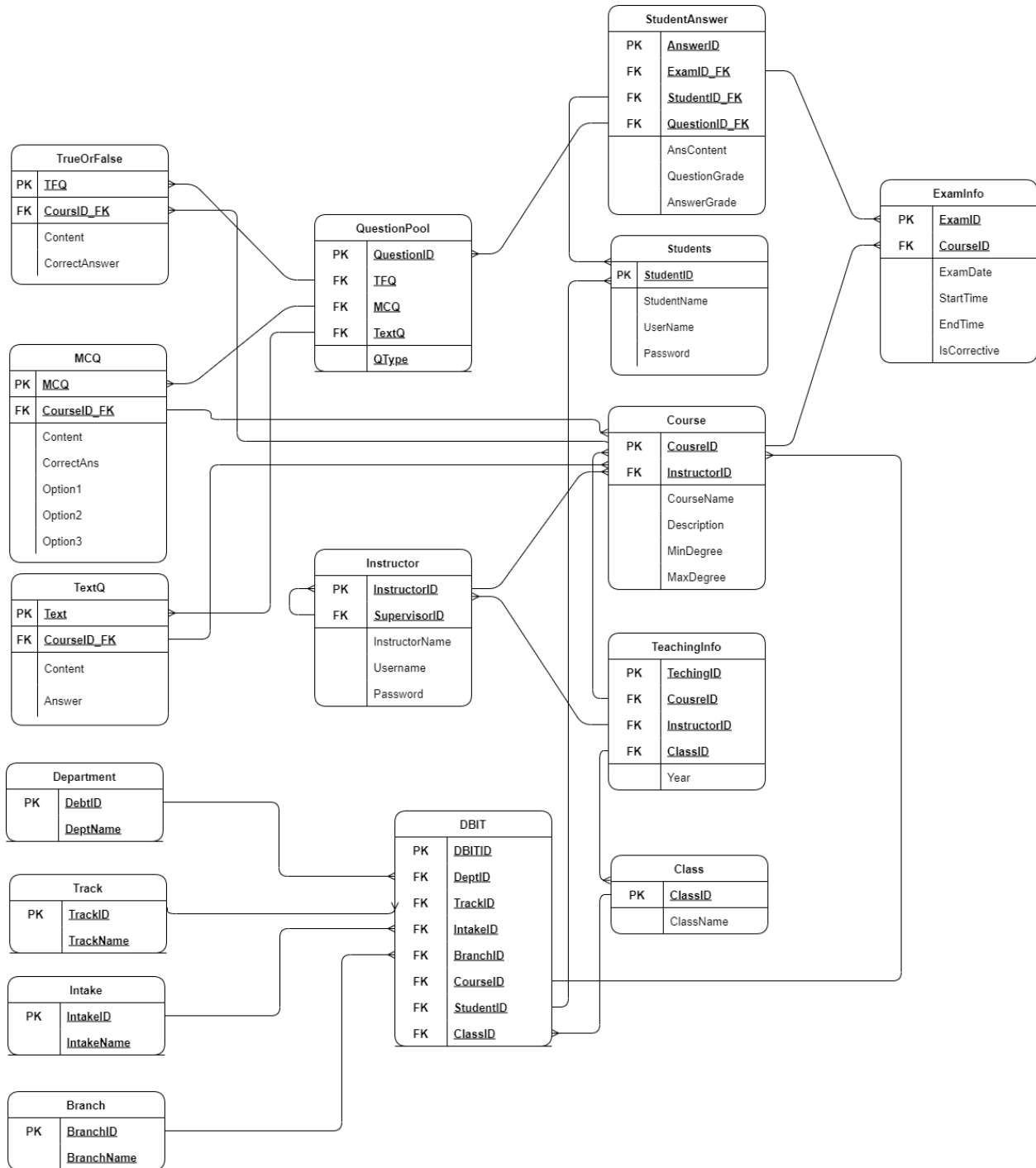
- This Database created on Microsoft SQL Server 2019
- Windows 10 x64
- .bak file attached with delivered files

System ERD

ERD Diagram




ERD Mapping






Brief description for all objects in DB

Create Database creation

```
use master
go
CREATE DATABASE Examination_System
    CONTAINMENT = NONE
    ON PRIMARY
    ( NAME = N'ExaminationSys_Data', FILENAME = N'C:\Program Files\Microsoft SQL
Server\MSSQL15.MSSQLSERVER\MSSQL\DATA\Examination_System_Data.mdf' , size=10MB,
maxsize=unlimited, FILEGROWTH = 10 ),
    FILEGROUP [SECONDARY]
    ( NAME = N'ExaminationSys', FILENAME = N'C:\Program Files\Microsoft SQL
Server\MSSQL15.MSSQLSERVER\MSSQL\DATA\ExaminationSys.ndf' , SIZE = 3072KB ,
MAXSIZE = UNLIMITED, FILEGROWTH = 1024KB )
    LOG ON
    ( NAME = N'ExaminationSys_log', FILENAME = N'C:\Program Files\Microsoft SQL
Server\MSSQL15.MSSQLSERVER\MSSQL\DATA\Examination_System_Log.ldf' , size=10MB,
maxsize=unlimited, FILEGROWTH = 10 )
go
```

 Examination_System

Created Data Files

 Examination_System_Data.mdf
 Examination_System_Log.ldf
 ExaminationSys.ndf

Create Tables and Insert Data

Tables and Data Created by T-SQL Script

Schema

Schema: CourseData

Contain Tables:

- 1- Class
- 2- Course
- 3- TeachingInfo

Schema: Exam

Contain Tables:

- 1- ExamInfo
- 2- StudentAnswer

Schema: Person

Contain Tables:

- 1- Instructor
- 2- Students

Schema: Question

Contain Tables:

- 1- MCQ
- 2- TextQ
- 3- TrueOrFalse
- 4- QuestionPool

Schema: Person

Schema: Student

Contain Tables:

- 1- Branch
- 2- Department
- 3- DIBT
- 4- Intake
- 5- Track

Schema: Question

Views

View ShowAllCourses

View created to show a table contain Course name, Instructor name, Track, Class, Branch

	course	instructorName	track	class	branch
1	JSNEXT	Sally	Full Stack .NET	Lab2	Assuit
2	JSNEXT	Sally	Full Stack PHP	Lab2	Alex
3	ES6	Tony	Front end	Lab1	Minufiyah

View DetailsAboutDepartment

View contains details about Department

	NameOfDepartment	NameOfTrack	NameOfBranch
1	Infomation System	Full Stack .NET	Assuit
2	MultiMedia	Full Stack PHP	Alex
3	Computer Science	Front end	Minufiyah
4	Infomation System	ui/ux	Assuit

View DetailsInstructor

View Instructors that are connected to courses.

	InstructorName	CourseTitle
1	Tony	ES6
2	Sally	JSNEXT

Functions

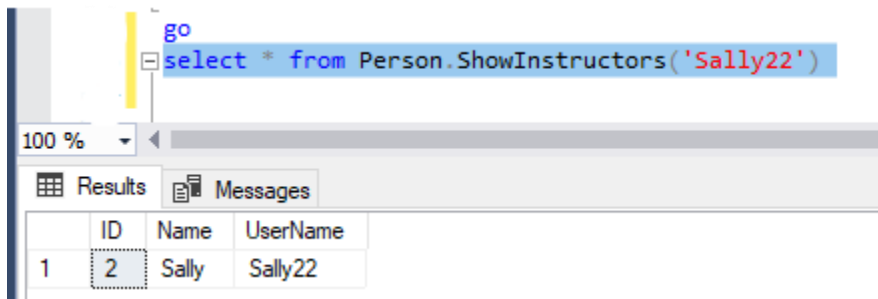
Function CourseData.AvailableCourses()

Function used to show available courses

	CourseTitle	InstructorName	TrackName	ClassNumber	BranchName
1	JSNEXT	Sally	Full Stack .NET	Lab2	Assuit
2	JSNEXT	Sally	Full Stack PHP	Lab2	Alex
3	ES6	Tony	Front end	Lab1	Minufiyah

Function Person.ShowInstructors()

Function takes parameter (@UserName nvarchar(50))



```
go
select * from Person.ShowInstructors('Sally22')
```

	ID	Name	UserName
1	2	Sally	Sally22

Function Person.ShowManagers()

Function takes zero parameter and return the Managers of instructors

	ID	Name	UserName
1	1	Sara	Sara1111

Function Question.ShowMCQQuestions()

Function takes parameter (@TitleCourse nvarchar(50)) and returns MCQ Questions in this course

	ID	Content	CorrectChoice	Choice1	Choice2	Choice3
1	1	What type of animal is a seahorse?	A	A) Crustacean	B) Arachnid	C) Fish
2	3	What existing bird has the largest wingspan?	B	A) Stork	B) Swan	C) Condor
3	4	What is the biggest animal that has ever lived?	C	A) Blue whale	B) African elephant	C) Apatosa

Function Question.ShowTextQuestions()

Function takes parameter (@TitleCourse nvarchar(50)) and returns TEXT Questions in this course

	ID	Content	BestAnswer
1	1	How many days do we have in a week?	Seven
2	3	How many sides are there in a triangle?	Three

Function Question.ShowTFQuestions()

Function takes parameter (@TitleCourse nvarchar(50)) and returns True or False Questions in this course

	ID	Content	CorrectAnswer
1	4	The study of stars is called astronomy.	False

Triggers

We Implemented triggers on all tables in the database that instead of deleting the entry we set the IsDeleted column to 1

Stored Procedures

SP- Question.SP_EditMCQ()

Stored Proc. takes parameters with parameter @Action= Insert or Update or Delete

```
(@MCQID int = 0 ,@MCQContent nvarchar(max), @MCQCorrectAnswer char(1),@MCQOption1  
nvarchar(max),@MCQOption2 nvarchar(max),@MCQOption3  
nvarchar(max),@MCQCourseID_FK int, @Action nvarchar(6),@MCQIsDeleted bit = 0)
```

To add or edit or delete MCQ Question

SP- Question.SP_EditTrueOrFalse()

Stored Proc. takes parameters with parameter @Action=Insert or Update or Delete

```
(@TOFID int = 0 ,@TOFContent nvarchar(max), @TOFCorrectAnswer  
nvarchar(max),@TOFCourseID_FK int, @Action nvarchar(6),@TOFIsDeleted bit = 0)
```

To add or edit or delete True or False Question

SP- Question.SP_EditTextQ ()

Stored Proc. takes parameters with parameter @Action= Insert or Update or Delete

```
(@TXTID int = 0 ,@TXTContent nvarchar(max), @TXTCorrectAnswer  
nvarchar(max),@TXTCourseID_FK int, @Action nvarchar(6),@TXTIsDeleted bit = 0)
```

To add or edit or delete Text Question

SP- Question.SP_EditQuestionPool ()

Stored Proc. takes parameters with parameter @Action= Insert or Update or Delete

```
(@ID int,@InstructorName nvarchar(50),@content nvarchar(max),@CorrectAnswer  
nvarchar(5),@CorrectChoice char(1),@Choice1 nvarchar(max),@Choice2  
nvarchar(max),@Choice3 nvarchar(10),@TypeOfQuestion nvarchar(20) = ",@TxtAnswer  
nvarchar(max) ,@StatmentType nvarchar(20) = ")
```

To add or edit or delete Any type of Questions

SP- CourseData.SP_EditCourse ()

Stored Proc. takes parameters :

(@ID int,@Title nvarchar(50),@Description nvarchar(max),@MinDegree int,@MaxDegree int,@InstructorID int,@StatementType NVARCHAR(20) = "")

To add or edit or delete Any Course

SP- CourseData.SP_EditInsructorInCourse ()

Stored Proc. takes parameters :

(@Title nvarchar(50),@UserName nvarchar(50))

To edit Any Course Instructor

SP- Person.SP_EditInstructorUserName ()

Stored Proc. takes parameters :

(@oldUserName nvarchar(50) ,@NewUserName nvarchar(50))

To edit Any Instructor username

SP- Person.SP_EditInstructorPass ()

Stored Proc. takes parameters :

(@UserName nvarchar(50),@NewPass nvarchar(50))

To edit Any Instructor Password

SP- StudentData.SP_RemoveStudentFromCourse ()

Stored Proc. takes parameters :

(@UserName nvarchar(50),@Title nvarchar(50))

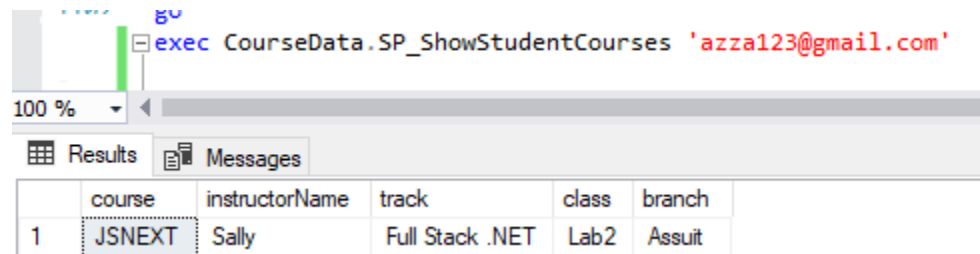
To Remove student from course

SP- CourseData.SP_ShowStudentCourses ()

Stored Proc. takes parameters :

(@UserName nvarchar(50))

To Show specific student courses



```
exec CourseData.SP_ShowStudentCourses 'azza123@gmail.com'
```

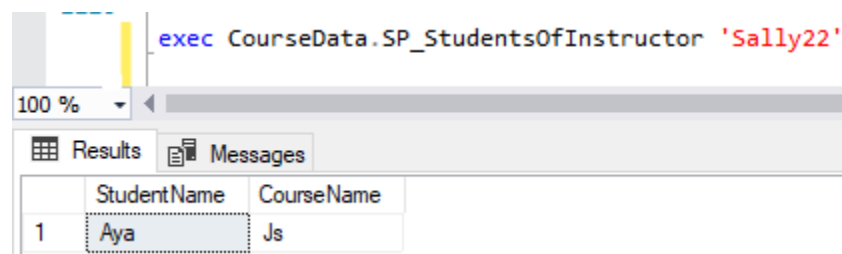
	course	instructorName	track	class	branch
1	JSNEXT	Sally	Full Stack .NET	Lab2	Assuit

SP- CourseData.SP_StudentsOfInstructor ()

Stored Proc. takes parameters :

(@UserName nvarchar(50))

To Show specific Instructor (student and courses)



```
exec CourseData.SP_StudentsOfInstructor 'Sally22'
```

	StudentName	CourseName
1	Aya	Js

SP- Exam.SP_CreateExam ()

Stored Proc. takes parameters :

(@CourseID int, @ExameDate date, @StartTime time , @endTime time , @IsCorrective bit, @ExamTotalGrade int)

To Create exam in specific Date, time and type

```
exec Exam.SP_CreateExam 2, '2021-01-22', '9:00:00', '12:00:00', 0, 50
```

```
exec Exam.SP_CreateExam 7, '2021-01-22', '8:00:00', '10:00:00', 1, 100
```

SP- Exam.SP_MakeCourseExam ()

Stored Proc. takes parameters: (using cursors)

(@CourseTitle nvarchar(50) ,@ExamID int)

To Generate Exam Automatically

```
exec Exam.SP_MakeCourseExam 'ES6',1
```

SP- Question.CalculateQuestionResult ()

Stored Proc. takes parameters :

(@UserName nvarchar(50),@QuestionID int,@ExamID int ,@QuestionType char(3))

To calculate student result for 1 Question

(To be used in CalculateFinalResult Procedure -WIP-)

The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows the execution of two stored procedures:

```
exec Question.CalculateQuestionResult 'Ahmed333@gmail.com',1,1,'MCQ'  
exec Question.CalculateQuestionResult 'Ahmed333@gmail.com',2,1,'MCQ'
```

The bottom pane shows the results of the queries, indicating that 1 row was affected for each execution. A yellow banner confirms that the query was executed successfully.

Below the banner, a table titled "Results" is displayed, showing the data for the two questions:

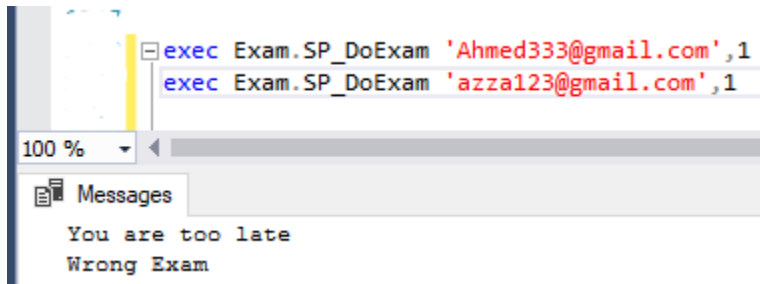
	AnswerID	ExamID_FK	StudentID_FK	QuestionID_FK	AnsContent	QuestionGrade	AnsGrade	IsDeleted
1	1	1	6	1	A	5	5	0
2	2	1	6	2	A	5	0	0

SP- Exam.SP_DoExam ()

Stored Proc. takes parameters :

(@UserName nvarchar(50),@ExamID int)

To Show student status and keep tracking the exam time.



SP- Person.SP_DeleteInstructor ()

Stored Proc. takes parameters:

(@UserName nvarchar(50))

To Delete Instructor (not really see triggers)

SP- CourseData.SP_DeleteCourse ()

Stored Proc. takes parameters:

(@Title nvarchar(50))

To Delete Course (not really see triggers)

SP- Question.SP_CourseQuestion ()

Stored Proc. takes parameters:

(@courseTitle nvarchar(50))

Returns all Questions assigned to Course

The screenshot shows the Results pane of a SQL Server query window. The table has the following data:

	Question	CorrectAnswer
1	What type of animal is a seahorse?	A
2	How many days do we have in a week?	Seven
3	How many sides are there in a triangle?	Three
4	The study of stars is called astronomy.	False
5	What existing bird has the largest wingspan?	B
6	What is the biggest animal that has ever lived?	C

SP- CourseData.SP_AddStudentToCourse ()

Stored Proc. takes parameters:

@UserName nvarchar(50),@Title nvarchar(50)

To assign Student to a course

SP- StudentData.SP_AddNewTrack ()

Stored Proc. takes parameters:

(@Name nvarchar(50))

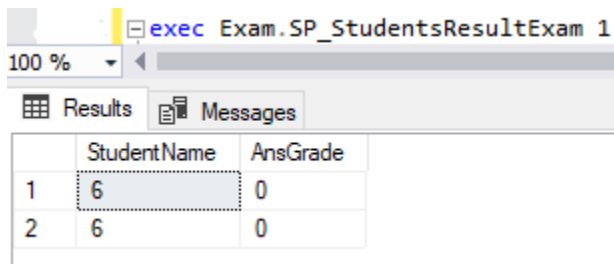
To add new track in tracks table

SP- Exam.SP_StudentsResultExam ()

Stored Proc. takes parameters:

(@ExamID int)

To show student result



exec Exam.SP_StudentsResultExam 1

100 %

Results Messages

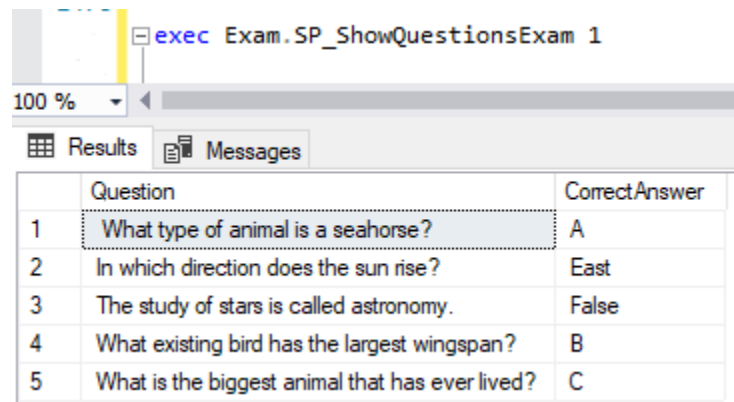
	StudentName	AnsGrade
1	6	0
2	6	0

SP- Exam.SP_ShowQuestionsExam ()

Stored Proc. takes parameters:

(@ExamID int)

To show questions in exam with id = x



100 %

Results Messages

	Question	Correct Answer
1	What type of animal is a seahorse?	A
2	In which direction does the sun rise?	East
3	The study of stars is called astronomy.	False
4	What existing bird has the largest wingspan?	B
5	What is the biggest animal that has ever lived?	C

SP- StudentData.SP_AddNewStudent ()

Stored Proc. takes parameters:

(@Name nvarchar(50),@UserName nvarchar(50),@Password nvarchar(50),@IntakeNumber
int,@BranchName nvarchar(50),@TrackName nvarchar(50),@DepartmentName nvarchar(50))

To to add student to (Department, Track, Intake, Class)

Permissions

Admin

Got all permissions

TrainingManager Permissions

```
[Person].[SP_DeleteInstructor]  
[StudentData].[SP_AddNewStudent]  
[CourseData].[SP_AddStudentToCourse]  
[CourseData].[SP_EditInstructorInCourse]  
[CourseData].[SP_DeleteCourse]  
[StudentData].[SP_RemoveStudentFromCourse]  
[StudentData].[SP_RemoveStudentFromCourse]  
[StudentData].[SP_EditDepartment]  
[StudentData].[SP_AddNewTrack]
```

Student Permissions

```
[dbo].[DetailsAboutDepartment]  
[Exam].[SP_DoExam]  
[Exam].[SP_DoExam]  
[Exam].[SP_DoExam]
```

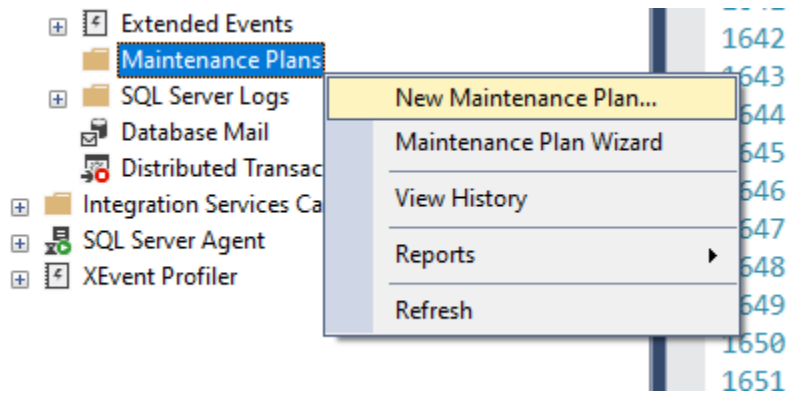
Instructor Permissions

```
[Question].[CalculateQuestionResult]  
[Question].[SP_CourseQuestion]  
[Question].[SP_EditMCQ]  
[CourseData].[SP_ShowStudentCourses]  
[CourseData].[SP_AddStudentToCourse]  
[Question].[SP_EditQuestionPool]  
[Question].[SP_EditTextQ]  
[Question].[SP_EditTrueOrFalse]  
[Exam].[SP_ShowQuestionsExam]  
[Person].[SP_EditInstructorUserName]  
[Exam].[SP_MakeCourseExam]
```

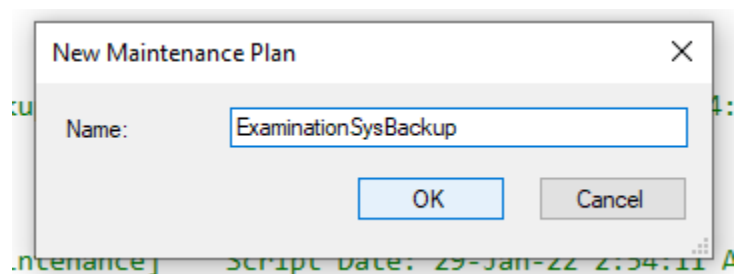
Daily Backup Schedule

Create Backup Steps

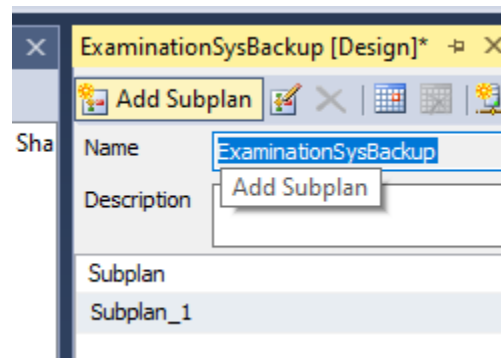
- 1- From Object Explorer: Select New Maintenance Plan



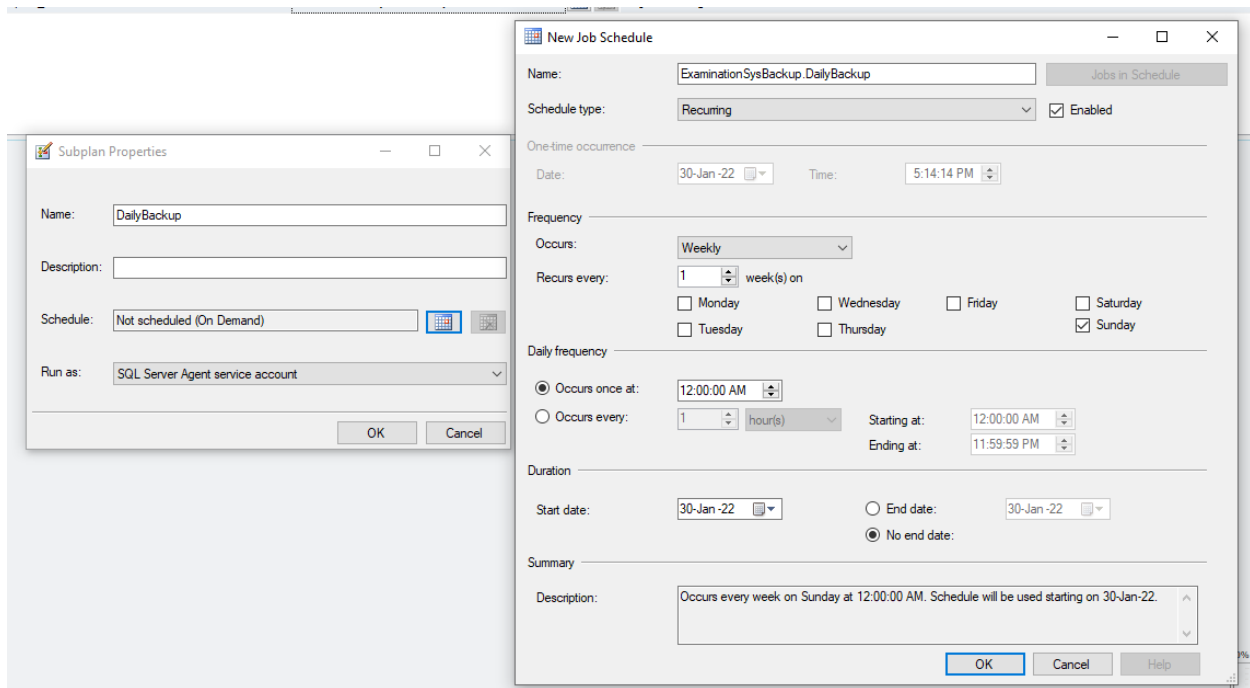
- 2- Set the plan name



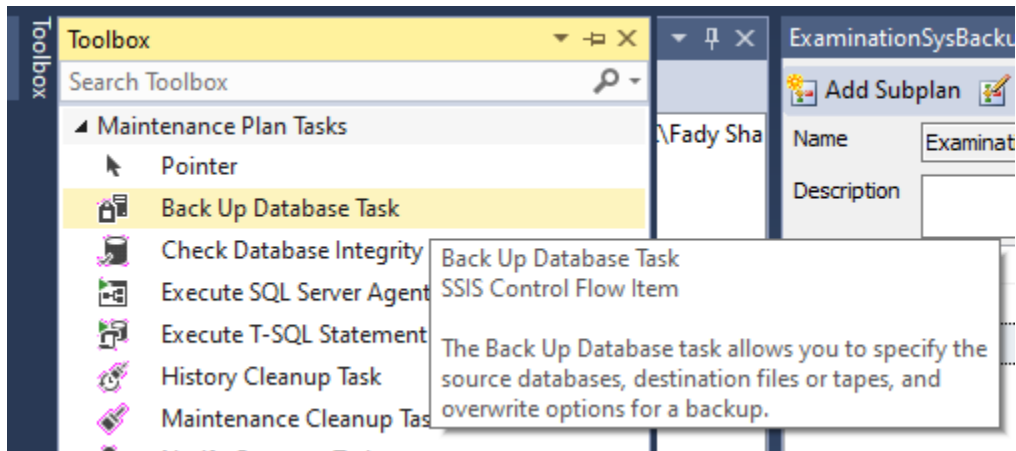
- 3- Add Subpla



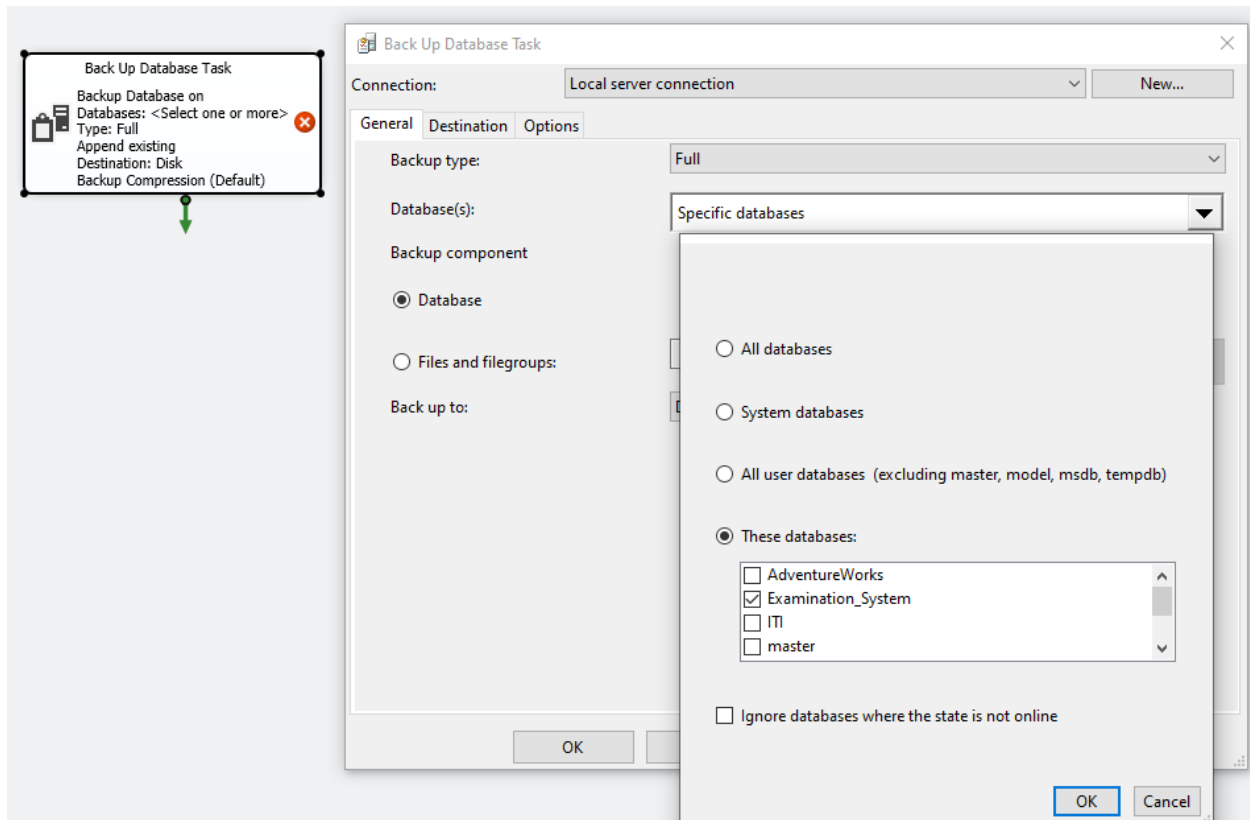
4- Set the values



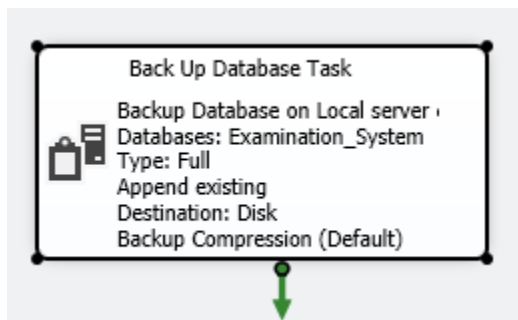
5- From Toolbox select -> Back UP Database Task -> Drag Drop



6- Double click on Task then update the Backup type and Destination Data



7- Then press OK



Backup T-SQL Code (Generated by the system)

```
-----Create Daily Backup Schedule-----
USE [msdb]
go

/***** Object: Job [ExaminationSysDBBackup.Subplan_1]    Script Date: 29-Jan-22
2:54:11 AM *****/
begin TRANSACTION
DECLARE @ReturnCode INT
SELECT @ReturnCode = 0
/***** Object: JobCategory [Database Maintenance]    Script Date: 29-Jan-22
2:54:11 AM *****/
if NOT EXISTS (SELECT name FROM msdb.dbo.syscategories WHERE name=N'Database
Maintenance' AND category_class=1)
begin
EXEC @ReturnCode = msdb.dbo.sp_add_category @class=N'JOB', @type=N'LOCAL',
@name=N'Database Maintenance'
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback

end

DECLARE @jobId BINARY(16)
EXEC @ReturnCode =  msdb.dbo.sp_add_job
@job_name=N'ExaminationSysDBBackup.Subplan_1',
    @enabled=1,
    @notify_level_eventlog=2,
    @notify_level_email=0,
    @notify_level_netsend=0,
    @notify_level_page=0,
    @delete_level=0,
    @description=N'No description available.',
    @category_name=N'Database Maintenance',
    @owner_login_name=N'DESKTOP-HEN5EV3\Fady Shafeek', @job_id = @jobId

OUTPUT
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback
/***** Object: Step [Subplan_1]    Script Date: 29-Jan-22 2:54:13 AM *****/
EXEC @ReturnCode = msdb.dbo.sp_add_jobstep @job_id=@jobId,
@step_name=N'Subplan_1',
    @step_id=1,
    @cmdexec_success_code=0,
    @on_success_action=1,
    @on_success_step_id=0,
    @on_fail_action=2,
    @on_fail_step_id=0,
    @retry_attempts=0,
    @retry_interval=0,
    @os_run_priority=0, @subsystem=N'SSIS',
    @command=N'/Server "$(ESCAPE_NONE(SRVR))" /SQL "Maintenance
Plans\ExaminationSysDBBackup" /set "\Package\Subplan_1.Disable;false"',
    @flags=0
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback
EXEC @ReturnCode = msdb.dbo.sp_update_job @job_id = @jobId, @start_step_id = 1
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback
EXEC @ReturnCode = msdb.dbo.sp_add_jobschedule @job_id=@jobId,
@name=N'DailyExaminationSysDBBackup.Subplan_1',
    @enabled=1,
    @freq_type=4,
    @freq_interval=1,
```

```

        @freq_subday_type=1,
        @freq_subday_interval=0,
        @freq_relative_interval=0,
        @freq_recurrence_factor=0,
        @active_start_date=20220129,
        @active_end_date=20220228,
        @active_start_time=0,
        @active_end_time=235959,
        @schedule_uid=N'fb25dd58-5508-47bb-bebf-9b4793a960b2'
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback
EXEC @ReturnCode = msdb.dbo.sp_add_jobserver @job_id = @jobId, @server_name =
N'(local)'
if (@@ERROR <> 0 OR @ReturnCode <> 0) goTO QuitWithRollback
COMMIT TRANSACTION
goTO endSave
QuitWithRollback:
    if (@@TRANCOUNT > 0) ROLLBACK TRANSACTION
endSave:
go

```