COSC 3380

Design of Database Systems
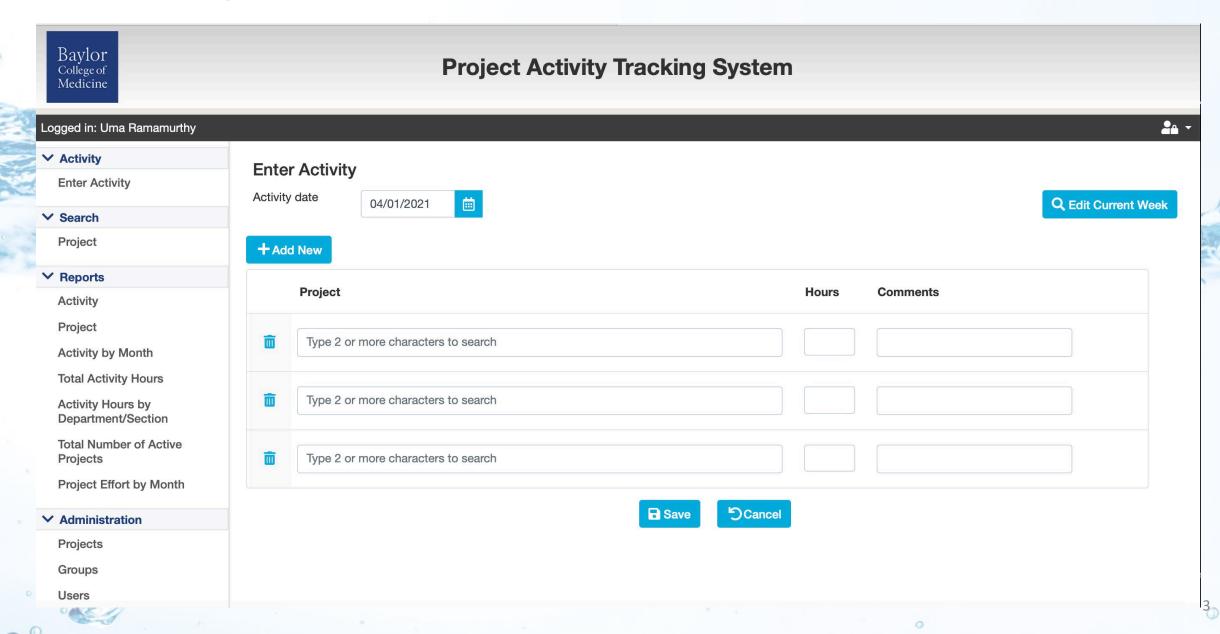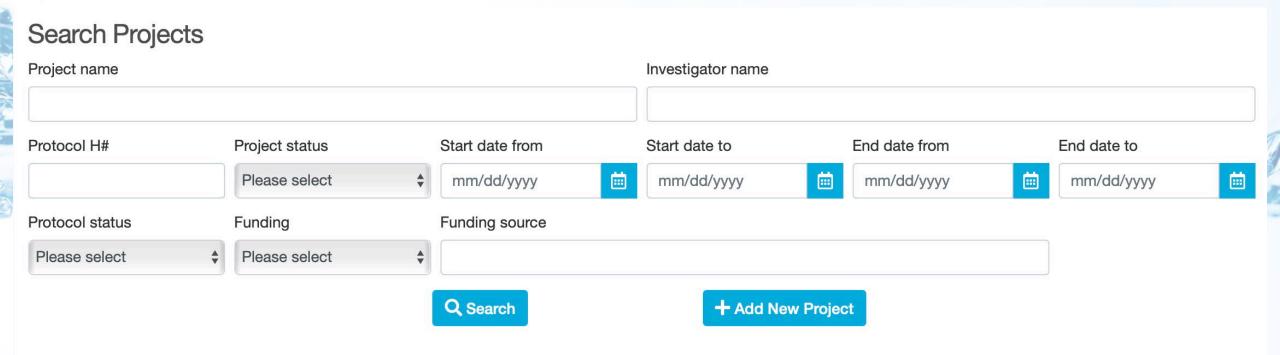
Team Projects
and
Midterm Exam Review

Team Projects – 5 must haves!

- **User authentication for different user roles**

- **Data entry forms – to add new data, modify existing data, and 'delete' data.**

- **Triggers – At least 2.**

- **Data queries – At least 3.**

- **Data reports – At least 3.**

Data Entry Forms

Data Entry Forms

Search Projects

Project name

Investigator name

Protocol H#

Project status
Please select

Start date from
mm/dd/yyyy

Start date to
mm/dd/yyyy

End date from
mm/dd/yyyy

End date to
mm/dd/yyyy

Protocol status
Please select

Funding
Please select

Funding source

🔍 Search

➕ Add New Project

Trigger Examples

Trigger definition

CREATE TRIGGER SALARY_VIOLATION
BEFORE INSERT OR UPDATE OF Salary, Supervisor_ssn **ON**
EMPLOYEE

Event

FOR EACH ROW
WHEN (NEW.SALARY > **(** SELECT Salary FROM EMPLOYEE
WHERE Ssn = NEW. Supervisor_Ssn))
INFORM_SUPERVISOR (NEW.Supervisor.Ssn, New.Ssn)

Condition

Action

```sql
CREATE TRIGGER [dbo].[TrgDemographics] ON  [dbo].[Demographics] AFTER INSERT,DELETE,UPDATE
AS
BEGIN


    declare    @Type varchar(1) ,
                    @UpdateDate datetime ,
                    @UserName varchar(128) ,
                    @field int ,
                    @maxfield int,
                    @sql varchar(2000),
                    @fieldname varchar(128)

    if exists (select * from inserted)
            begin
                    if exists (select * from deleted)
                            select @Type = 'U'
                    else
                            select @Type = 'I'
            end
    else
            begin
                    select @Type = 'D'
            end


    select @UpdateDate = CONVERT(datetime,SYSDATETIME(),121), @UserName = SYSTEM_USER


    if @Type ='D'
            insert into Audit_Demographics select @Type, @UserName, @UpdateDate, * from deleted
    else
            insert into Audit_Demographics select @Type, @UserName, @UpdateDate, * from inserted

END
```

```sql
CREATE TRIGGER [dbo].[CalculateScorePMCOVIDExperiencesQuestionnaireT1DPage5]
   ON  [dbo].[PMCOVIDExperiencesQuestionnaireT1DPage5]
   AFTER Update, Insert
AS
BEGIN


        declare @AccessionNumber int = null, @SurveyType int = null;
        declare @DataExistsInScoresTable int=0;
        declare @MasterStudyID int = 151;
        declare @Score float= 0;
        declare @scoresTableReturned table(Score float, AccessionNumber int , SurveyType int)

            SELECT @AccessionNumber = AccessionNumber, @SurveyType = SurveyType FROM inserted

        insert into @scoresTableReturned select * from dbo.fnCalculatePMCOVIDExperiencesQuestionnaireT1D(@AccessionNumber, @SurveyType);

        set @Score = (select top 1 Score from @scoresTableReturned)



        Set @DataExistsInScoresTable = (Select count(*) From  PMCOVIDExperiencesQuestionnaireT1DScore where  AccessionNumber=@AccessionNumber and MasterStudyID=@MasterStudyID and
SurveyType=@SurveyType )

            if(@DataExistsInScoresTable>0)
                update PMCOVIDExperiencesQuestionnaireT1DScore set TotalScore = @Score, LastUpdated=GETDATE(), UpdatedBy = SYSTEM_USER
                where  AccessionNumber=@AccessionNumber and MasterStudyID=@MasterStudyID and SurveyType=@SurveyType

            else
                insert into PMCOVIDExperiencesQuestionnaireT1DScore values(@MasterStudyID, @AccessionNumber, @SurveyType,@Score,SYSTEM_USER ,GETDATE(),SYSTEM_USER,GETDATE())

END
```

What are data reports?

- Formatted way of looking at a database table or the results of a query
- May pull data from more than one table
- Many programs have wizards or other tools to make it easy to create a report
- Can be modified and customized

SQL Server Reporting Services (SSRS)

- Reporting software to produce formatted reports with tables in the form of data, graph, images, and charts.

- Reports are hosted on a server that can be executed any time using parameters defined by the users.

SQL Server Reporting Services (SSRS)

- Three main tools:
  - Report Builder
  - Report Designer
  - Report Viewer
- Functionality to export reports to other formats

Report Request

Activity Report

Group *

ORIT

☑ Include inactive employee(s)

Protocol H#

Type 2 or more characters to search

Principal investigator

Ramamurthy, Uma

Additional Investigator(s)/Personnel

Type 2 or more characters to search

Employee

Project

Type 2 or more characters to search

Activity date from

01/01/2021

Activity date to

03/31/2021

View Report   💾 **Save As** ▾

Report Output

Report of Activity Hours

ORIT

Project Title	Short Title	H Number	Investigator	Activity Date	Activity Type	Comments and Actions	Activity Hours
Database Change Management System	Database Change Management System		Ramamurthy, Uma				
				01/13/2021			0.5
				01/21/2021			1
				01/22/2021			0.5
				02/09/2021			0.5
				03/29/2021			0.5
				03/30/2021			0.5
						Sub Total	**3.5**

Research IT Ticketing System	Research IT Ticketing System		Ramamurthy, Uma				
				01/14/2021			1
				01/21/2021			2
				01/27/2021			0.5
				01/28/2021			1
				02/01/2021			1.5
				02/02/2021			1.5
				02/03/2021			2.5
				02/04/2021			2.5
				02/05/2021			1.5
						Sub Total	**14**
						Total	**17.5**

Report Request

Activity by Month

Group*

| ORIT | ▾ |

☑ Include inactive employee(s)

Protocol H#

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Principal investigator

Ramamurthy, Uma

Additional Investigator(s)/Personnel

Type 2 or more characters to search

Employee

Type 2 or more characters to search

Project

Type 2 or more characters to search

Activity date from

mm/dd/yyyy 📅

Activity date to

mm/dd/yyyy 📅

Activity year

| 2021 | ▾ |

Activity month

| January | ▾ |

View Report   **💾 Save As ▾**

Report Output

Monthly Report of Activity Hours

January 2021

ORIT

Project	Investigator	Department	Section	Name	Hours
Database Change Management System	Ramamurthy, Uma	Pediatrics	Research Resources Office (RRO)		
				▋	67.5
				▋	2
			Subtotal of project		**69.5**
QlikView Setup and Administration	Ramamurthy, Uma	Pediatrics			
				▋	0.5
			Subtotal of project		**0.5**
Research IT Ticketing System	Ramamurthy, Uma	Pediatrics	Research Resources Office (RRO)		
				▋	147
				▋	4.5
			Subtotal of project		**151.5**
Review and assist with hardware procurement	Ramamurthy, Uma				
				▋	7.5
			Subtotal of project		**7.5**
Review and assist with software procurement	Ramamurthy, Uma	Pediatrics	Research Resources Office (RRO)		
				▋	2
			Subtotal of project		**2**
VCenter and ESXi	Ramamurthy, Uma				
				▋	59
			Subtotal of project		**59**
			Subtotal of group		290
			Subtotal of month		290

Report Request

Activity Hours by Department/Section

Group *

| ORIT ▼ |

☑ Include inactive employee(s)

Department

| Surgery ▼ |

Section

| Please Select ▼ |

Project

| Type 2 or more characters to search |

Activity date from

| mm/dd/yyyy 📅 |

Activity date to

| mm/dd/yyyy 📅 |

Activity year

| 2021 ▼ |

Activity month

| January ▼ |

View Report   **💾 Save As ▾**

16

Report Output

Activity Hours by Department and Section

January, 2021

Department: Surgery   Section: Cardiothoracic Surgery

Project	Service Area	Total Hours
Cardiothoracic Surgery		
	ORIT	1.5
	Total per Project	1.5
Cardiovascular Surgery Morbidity and Mortality		
	ORIT	27
	Total per Project	27
	Total in section	28.5

Department: Surgery   Section: General Surgery

Project	Service Area	Total Hours
Surgery Morbidity and Mortality		
	ORIT	1
	Total per Project	1
	Total in section	1

Department: Surgery   Section: NA

Project	Service Area	Total Hours
Cardiac Surgery Research Database		
	ORIT	109
	Total per Project	109
	Total in section	109
	Total in department	138.5

Report Request

Project Effort by Month

Group *

| ORIT | ⌄ |

☑ Include inactive employee(s)

Protocol H#

Type 2 or more characters to search

Principal investigator

Ramamurthy, Uma

Additional Investigator(s)/Personnel

Type 2 or more characters to search

Employee

████████████

Project

Type 2 or more characters to search

Activity year *

| 2021 | ⌄ |

Activity month

☑ January
☐ February
☐ March
☐ April

View Report   💾 **Save As** ⌄

Report Output

Project Effort Report - ORIT Income Variance by Project and Personnel

2021

		Annual Salary + Fringe	Service Center Allocation	Hour	Effort (%)	Cost (%)	Allocation ($)	Total Hours per Project	Effort per Project (%)	YTD Income Accrued Per Project	YTD Income Received Per Project	YTD Income Outstanding
	1											
QlikView Setup and Administration				0.5	0.3289			0.5	0.3289			
Review and assist with hardware procurement				7.5	4.9342			7.5	4.9342			
Review and assist with software procurement				2	1.3158			2	1.3158			
VCenter and ESXi				59	38.8158			59	38.8158			
Monthly Total				69	45.3947			69	45.3947			
Total				69	45.3947			69	45.3947			

4/1/2021 11:19:48 AM   Page 1 of 1

COSC-3380

Midterm Exam Review

Date/Time/Location

In person, at UH campus

Location: SEC 103

Date: Wednesday, March 6, 2024

Time: 5:30 PM to 7 PM

Midterm Exam Review

- Concept questions
  - Basic
  - Applied

- Database schema design

- Write SQL queries

- Data output for given SQL queries

- Database operations and effects