PUSL2019 Information Management and Retrieval

Coursework
2024-2025

Term: Term 1

Submission Deadline: To be confirmed

Coursework Type: Group Assignment (10 members)

Element of Assessment:

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Coursework

A supermarket is planning to have a customized POS (point of sale) system to manage their crowd and the tasks. They wanted to focus on Customer, Stock, Discount, Sales and reporting related to their business. The Owner of the organization expecting to take decisions based on the reports which is provided by the system daily/monthly for the development.

You have been hired with the team to consider this scenario to make the database system for the organization and to check the real time working condition it is expected to develop a software (Any Programing Language) to perform at least a single operation on the above database.

Tasks

The aim of this coursework is to analyse the above case study to design and develop a database in Microsoft SQL Server including high data integrity and data validation to facilitate the following.

1. Allow the administrative staff to enter and maintain details about all the project activities. Your application should include appropriate **data validation** mechanisms (constraints), **triggers** and **user defined functions**.
2. Allow authorized parties to view details to generate meaningful management reports to make strategic, long term and short-term managerial decisions. Your application should include appropriate **views** and **stored procedures** to retrieve operational data.

Deliverables

Deliverable 1

You should submit **a document (soft copy)** containing:

Section 1:

- A basic introduction to the scenario with the important facts you have identified and considered to your solution. (Do not copy and paste the given scenario as it is)
- An Entity Relationship (ER) or Extended Entity Relationship (EER) Diagram showing all of the entities, their attributes, relationships, cardinality ratio and the participation constraints. (Should include a sensibly resized diagram which clearly show all the elements)
- A list of any additional assumptions you have made which affect your solution.

- Relational Mapping (Have to clearly indicate the steps of relational mapping with all table attributes, primary keys and foreign keys)
- Data Normalization (Have to clearly indicate all the steps of up data normalization up to Third normalization form).
- Data Dictionary of each normalized table. (Should contain all the details about each table field)

Section 2:

- Microsoft SQL Server creates table statements with related **Constraints** for each table to validate data. (Should include sensibly resized screenshots of all the table creation statements which clearly show all the SQL statements)
- Database Diagram of your solution. (Should include a sensibly resized diagram which clearly show all the elements)
- A set of relevant and sensibly sized screen shots showing all the tables in your application with some meaningful sample records. (Should insert more than 10 meaningful sample records to each table in your database).

Section 3:

- Microsoft SQL Server **Create Trigger** statements for the triggers that you have created. (Should create at least two triggers for your database and should provide sensibly resized screenshots of the SQL statements)
- Microsoft SQL Server **Create Function** statements for the user defined functions that you have created. (Should create at least two user defined functions for your database and should provide sensibly resized screenshots of the SQL statements)
- Microsoft SQL Server **Create View** statements for the database views that you have created. (Should create at least two database views for your database and should provide sensibly resized screenshots of the SQL statements)
- Microsoft SQL Server **Create Procedure** statements for the stored procedures that you have created. (Should create at least two stored procedures for your database and should provide sensibly resized screenshots of the SQL statements)

Section 4:

- A critical appraisal of your solution highlighting worthy features, together with any shortcomings and how they might be resolved.
- Comments on future implementation of your application. Note that you should include all the SQL queries you have created within your database including Data Definition Language (DDL) and Data Manipulation language (DML) for tables, triggers, views, stored procedures and user

defined functions. You should provide sensibly resized screenshots to show all the SQL statements within the database that you have created.

Deliverable 2

A complete backup of your database (.bak) with a softcopy of Deliverable 1 (.docx or .pdf) and the Presentation slide show (.pptx) also should be included in the submission. Note that any part of your submission in an incorrect file format cannot be marked. Coursework may be submitted at any time ahead of the deadline time. Please note the University regulations concerning late submission of coursework. Please note that the late submissions of project deliverables will not be assessed.

Deliverable 3

You will be required to perform a 5-minute presentation of your solution followed by a 10-minute question and answer (viva) session.
Note that the database objects and applications may be accessed in your absence as part of the assessment process. You should ensure that your tables are populated with an adequate amount of sensible test data in advance of this session, and it is particularly important that date and time-dependent data is applicable to the date and time of your solution.

The presentation and viva will be taken according to a schedule prepared by NSBM. Students will be informed about the schedule.

Assessment

The assignment assesses the Learning Outcomes of the module,

1. Write effective SQL statements for defining, manipulating and controlling data.
2. Design and implement a multi-user database application

Assessment criteria

Coursework (80%)			Total (100%)
Documentation and Database objects including the quality of application	Section 1	ERD/ EERD	20
		Assumptions	
		Relational Mapping	
		Normalization	
		Data Dictionary	
	Section 2	Create Tables & Constraints	20
		DB Diagram	
		Sample Records	
	Section 3	Triggers	40
		Database Views	
		User Defined Functions	
		Stored Procedures	
	Section 4	Critical Evaluation	20
		Future Implementation	
Total			**100**

Practical (20%)		Total (100%)
Preparation for the Demonstration	Planning & Organizing the work	20
Demonstration & Viva	Demonstration of work	30
	Questions & Answers	50
Total		**100**

Marks allocation and assessment criteria

Coursework	Maximum Marks
Documentation and Database objects including the quality of application To achieve a mark of 40% or above in this section, you must clearly show your ER/EER diagram, relational mapping, data normalization, data dictionary and the implementation of all your tables with appropriate sample records. To achieve a mark of 60% or above in this section, you must also show how you have implemented meaningful constraints, triggers and views for your application. To achieve a mark of 80% or above in this section, you must also show how you have implemented meaningful stored procedures and user defined functions for your application. Also you should give a critical evaluation of your solution highlighting worthy features, together with any shortcomings and how they might be resolved along with further implementations of your application. To achieve full marks for this section, you must submit a complete documentation by covering all the facts at each section of your documentation as mentioned above.	**100**

Practical	Maximum Marks
Preparation for the Demonstration To achieve full marks for this section you should present the most important and critical points of your solution within 15 minutes. Solution preparation, planning, coordination and time management is highly measured under this section. Marks will be increased for well-prepared students who maintain a good flow in their presentation. Marks will be reduced for the use of insufficient and inappropriate test data.	20
Demonstration & Viva To achieve full marks for this section, each individual student should be able to present the most important and critical points of his or her individual work done in the coursework. And also should be able to answer the questions asked by the module leader during the presentation based on their individual performance. Marks will be increased for well-prepared individuals who maintain a good flow in his or her presentation.	80
TOTAL	**100**

Submission Type

Moodle e-submission through Plymouth Digital Learning Environment (DLE) is compulsory for each module.

Penalties for Late Submissions

80% Marks only will be provided for the Late submission (Within the day). And For others the marks will be capped for 50%.

Weightage of Assessment

Component	**Weightage**
Final Exam	50%
Group Assignment	40% (20% Documentation 20% Presentation)
Individual Assignment/ Class test	10%