

Pratiksha Mayekar (Group 2)

Capstone 1 Rubric

Changes last recorded April 9.

Name: _____

Functionality	1	2	3	4	5	Score	Weight	[Change Log]
UI	Non-existent or non-functioning UI	UI is unclear, needlessly cluttered, yet mostly functional	UI is clear, simplistic, and transparent in the data being collected					
Database UI OLTP	Does not demonstrate a clear understanding of data mapping, such as errors in data type choices	Demonstrates some understanding of data mapping, but with some mistakes	OLTP understanding is demonstrated via clear mapping of UI to database schema					
	No mitigation for error - used basic text fields for everything - doesn't check any data types from the inputs	Commits perform successfully with minimal room for error, but no pop-up notice in the event the commit fails (no notification to the user that something happened - no messaging or communication with the user)	Commits perform successfully and with minimal room for error and a pop-up notice in the event of a commit failing					
Database	Database falls short of having a star schema data structure or multiple tables	Database includes many of the data structures they scoped for, but some missing or incomplete - minimum one incomplete star or snowflake schema, minimum two tables total.	Database includes all the data structures that should be present in the appropriate tables as required by their system - minimum of one complete star or snowflake schema, minimum of four tables total, one aggregation, and minimum one OLAP-style denormalized table (e.g. Cross-tab of Sales by date by employee)					Apr 9: include snowflake as valid schema option.
		Database is populated by only one distinct data source	Database is populated by two data sources (historical + UI).					
Jupyter Notebook	A database quality checker is provided but is not consistently able to show relevant database info.	A database quality checker is provided that shows some column names and data types, but not common joins.	A database quality checker is provided that runs test to provide a birds-eye view that each database table is stable in terms of column names, data type consistency by column, and demonstrates a few common joins.					
Excel Dashboard	Dashboard has no data connection pre-existing in the workbook or student is unable to demonstrate the use of data connections	Dashboard has proven functionality for the sales manager to initiate their own pivot tables and charts using only one existing data connection and during the presentation, the student demonstrates use of the data connection	Dashboard has proven functionality for the sales manager to initiate their own pivot tables and charts using two or more existing data connections and during the presentation, the student demonstrates use of the data connection. *Use data connection is not required on Mac.					
Analysis Findings	No visual aides, no statistical basis for any dashboard elements	Demonstrates they can generate visual aides, but lacks in statistical basis for choice of visuals	Demonstrates a statistical mindset: shows findings with the aid of specific visuals that demonstrate actionable insights related to historical modeling and basic forecasting					
					Section Total (out of 2.5):	0	50%	
Quality							Quality Weighting	100%
Data Visualization Principles	Failed to demonstrate an understanding of data visualization principles - e.g., poor use of colors, unclear legends	Demonstrates some understanding of data visualization principles but may have missed on some principles. (Visual Perception: order, hierarchy, clarity, relationships, convention)	Demonstrates clear understanding of fundamental data visualization principles (covered in 1st half of course)				10%	
Structure and Logic	Comments nonexistent	Minimal comments included but could be improved upon	Clear, meaningful, and useful comments used throughout the codebase				5%	
	Data modeling: Minimal effort to appropriately name database objects, functions and/or variables	Data modeling: Mixed use of appropriate name choice for database objects, functions, and/or variables	Data modeling: Well-chosen names for all database objects, functions, and variables				5%	
Database Design			Database design choices for keys, datatypes and other constraints are clear and justified. A rudimentary database EER diagram is provided, using a simple PowerPoint slide or tool such as LucidChart.				5%	
Excel - Data Wrangling	Minimal or no success converting data into a loadable format.	Partially successful conversion of data provided in Excel format to a loadable format.	Successful conversion of data provided in Excel format to a format suitable for loading to a database.				3%	
Excel - functions	poorly written functions that break often and have poor error handling	Functions, where used, are somewhat well structured, but have some room for improvement	Functions, where used, are well structured and optimized				3%	
Excel - charts	Minimal or no use of charts	One or more charts are used, but no statistical finding is present	One or more charts are used to plot a statistical finding				3%	
Excel - data tables and power query	Does not connect Excel to SQL server or any other file type using Power Query	Connects Excel to MySQL server using Power Query, but does not employ the use of any Power Query statements beyond the auto-generated "Source" and "Change Data Type" statements.	Appropriately connects Excel to MySQL server and one other file type, such as a flat file or another Excel file. Has a mixed use of basic Power Query statements.				3%	Apr 9: Clarified MySQL Server (instead of SQL Server), and added language about Power Query statements.
Excel - Pivot tables, pivot charts	No use of pivot table or pivot chart	There is at least 1 pivot table + pivot chart combination present, with only default formatting	There are 3 or more pivot table + pivot chart combinations, each with distinct chart types, yet consistent formatting. When changing filter choices, there are no collisions between pivot tables				3%	
Excel - slicers	No use of slicers	Excel dashboard has one slicer minimum with connection to one pivot table + pivot chart combination	Excel dashboard has one or more slicers with connections to multiple pivot table+pivot chart combinations				2%	
SQL	Choice of SQL operations and functions aligns poorly with desired outcome, with significant flaws in performance and readability	Mixed use of appropriate SQL operations and functions for each procedure implemented, but with notable performance and readability shortcomings	Uses the appropriate SQL operations and functions for each procedure implemented taking into account basic performance and readability				10%	
			Data quality checker includes comment cells that explain what each section of the code does.					
Jupyter Notebook			User should be ready to start/restart Jupyter Notebook from the command line / Terminal, be that the stock CLI or one embedded in their IDE.				10%	Apr 9: Added specific requirement to "be ready to start from command line" so that the student has the opportunity to demonstrate a basic understanding of CLI.
Python ETL (Data Injection)	Code is not functional	Has functional code that has some logical fallacies or is uncommented/unexplained	Has clean commented code that is functional for the processes being run				10%	
			Specifically uses some Python Library for batch injection into database				10%	
Python Flask			Specifically uses Flask library for UI, and SQLAlchemy for database CRUD.				10%	
Exception Handling/ Defensive Coding	App breaks / crashes frequently, based on user input	A few major exceptions are handled and/or logged, but App may still crash occasionally	App does not crash with missing data or bad user input.				3%	
					Section Total (out of 1.25):	0	25%	
Presentation								
Usability, UI/UX	Interface poorly laid out	UI is functional and behaves as expected	User interface is clean and professional					
	User would struggle to use this application	Usage is mostly intuitive, but with noticeable shortcomings easily discovered	Usage is intuitive and the application is easy to use					
Planning Process	Presentation does not address the planning process or dismisses the suggestion of iterative development	Presentation addresses the planning process, but minimally addresses impediments or an iterative process to solving problems encountered	Presentation includes an explanation of the problem solving/planning process taken. E.g., how did you approach problems and solve them iteratively? How did you react to unforeseen impediments?					Apr 9: Took out explicit requirement for a slide to avoid contradicting the Capstone 1 Requirements document. Use of a slide in the appendix is suggested but not required, as with all other appendix documents. The counterfactual I shared in class was that when I presented my mock lecture during my job interview, I suspected that when I mention database engines that they would follow up with questions. I came prepared by having MySQL already open, writing the "show engines" statement from memory, and talking about the engines from there. Doing so demonstrated I could think on my feet and knew how to use the tools I was talking about. Bit of a gamble.
	No reflection and/or refactoring	Minimal areas of reflection and/or refactoring	Clearly and honestly indicates areas of reflection and/or refactoring (e.g., what would you do differently if you knew then what you know now? With more time, what more would you do with this? Could you see this scaling out into a bigger project?)					
Class Presentation	Student had to stop to make adjustments that didn't add value to the presentation (e.g., loading programs unnecessarily, crashing programs, finding presentation material, etc.)	Presentation was completed within the allotted time (157 minutes) and covered all points expected. But, the presentation had a few bumps. (For example, it didn't flow naturally or there were stops and starts or the presenter lost their place)	Presentation was engaging and interactive - it was well rehearsed, clear, and flowed naturally through the features					
	Student could not clearly present the data or analytic findings when asked	Student was able to answer technical questions correctly or was at least on the right track	Presentation was persuasive when presenting analytical findings. Student was able to provide clear and insightful responses to technical questions					