CST3604 PROJECT 2 – SPRING 2019

Hotel Reservation System Version 2 – Project Requirements Document

Project Requirement – Design, Development & Implementation of Physical Model

Project Exam Problem Statement

Overview & Objectives

- You are re-hired as a consultant by **NYC-TECH** to upgrade the ***EZReservations.com*** **Hotel Reservations System designed and developed based on the application requirements of PROJECT 1.**
- **This project is an UPGRADE to PROJECT 1. You are asked to upgrade Project 1 by adding some new features.**
- **The business** came back with **NEW REQUIREMENTS** to upgrade the **Database tier** to the **Hotel Reservations System.**
- Therefore, we will repeat our **Project Management Application Development Lifecycle Methodology** process as needed (Plan, Analysis, Design, Development/Implementation & Operations).

- As you recall from project 1, this application is divided into several projects (PROJECT 1, PROJECT 2, PROJECT 3 & PROJECT 4) using a Project Management Methodology, thus dividing the project into parts:

1. In PROJECT 1, you follow the ***Project Management Methodology using the Database Application Development Lifecycle*** (*PLANNING, ANALYSYS, DESIGN, DEVELOPMENT/IMPLMENTATION & OPERATIONS/MAINTENANCE*) ***to create the first version of a full working application*** that includes the following:

    1) ***Business Requirements provided by the customer EZ Hotels Inc***
    2) ***ER/EER model***, ***Normalized Logical Model***
    3) ***Physical Model (Data Dictionary & Physical Schema Diagram Only)***
    4) ***fully Developed & Implemented Database Tier***
    5) ***Project Design/Implementation documentation***

2. In PROJECT 2, you will also follow the ***Project Management Methodology using the Database Application Development Lifecycle*** (*PLANNING, ANALYSYS, DESIGN, DEVELOPMENT/IMPLEMENTATION & OPERATIONS/MAINTENANCE*) ***to UPGRADE the first version by creating business reports and improve the performance of the of a full working application***.

Requirement #1 (5 POINTS) – (Phase 1 – Planning) – UPGRADE the Project Design & Implementation Document of PROJECT 1

- In this project you will ***UPGRADE*** the Project 1 Design & Implementation Document as follows:

1. You will now upgrade your design/implementation document of PROJECT1 by adding a PROJECT 2 section and sub-sections fto contain the results based on the requirements of project2 AT THE END OF THE EXISTING DOCUMENT. **This UPGRADED PROJECT DOCUMENT IS WHAT YOU WILL SUBMIT TO YOUR CONTRACTOR (PROF RODRIGUEZ)**
2. This document is to contains the ***goals and requirements*** for **VERSION 2**.0 of the ***EZReservations.com*** **Hotel Reservations System** with explanation of what you are going to do, how you are going to do it, etc.
3. **THIS DOCUMENT IS INTENDED TO BE SUBMITTED TO THE CUSTOMER EZ Hotels Inc therefore MUST be created professionally & targeted to the customer, NOT NYC-TECH or anyone else.**
4. **DO NOT INCLUDE IN THE NEW SECTION OF YOUR PROJECT DOCUMENT THE INSTRUCTIONS OR REQUIREMENTS STATEMENTS FROM THIS DOCUMENT, such as Requirement Number or INSTRUCTIONS ON WHAT TO DO. YOUR PROJECT DOCUMENT IS A DELIVERABLE FOR THE CUSTOMER THAT CONTAINS THE PLAN, ANALYSIS, DESIGN & IMPLEMENTATION OF THE SOLUTION, NOT INSTRUCTIONS FROM THIS REQUIREMENTS DOCUMENT! Therefore, this requirement #1 and any other instructions statement from this document SHOULD NOT BE IN YOUR PROJECT DOCUMENT!**

- **Requirement #1** details are as follows:

❖ **Requirement #1a – UPGRADE the EXISTING Design/Implementation Project Document from Project 1 by creating a new TOP-LEVEL SECTION AT THE END after your existing conclusion section & name the section as indicated below:**

5. In your existing design/implementation document of PROJECT1 ***CREATE*** a new **TOP-LEVEL HEADING/SECTION** AT THE END OF THE EXISTING DOCUMENT (**After the existing conclusion**).
6. ***NAME*** this section **Hotel Management System Database Design & Implementation Version 2.0**

❖ **Requirement #1b – Inside the new TOP-LEVEL SECTION CREATE SUB-SECTIONS for EACH REQUIREMENTS of this PROJECT 2, except Requirement 1:**

7. Below are the **sections and the ORDER in your existing Design & Implementation Document and the NEW TOP & SUB HEADERS you need to ADD/CREATE for the UPGRADE SECTION of this document** for this project document:

CURRENT PROJECT 1 SECTIONS:

1) **Executive Summary**
2) **Problem objectives**
3) **Targeted Technical Architecture**
4) **Targeted Methodology & plan (including this Planning phase or steps above)**
5) **A section for Planning phase Business requirements – *requirement #2* of this document**
6) **A section for Analysis phase ER/EER Conceptual Model – *requirement #3* of this document**
7) **A section for Design Phase Normalized Logical Model – *requirement #4* of this document**
8) **A section for Design Phase Data Dictionary – *requirement #5* of this document**
9) **A section for Design Phase Physical Model Schema Diagram – *requirement #6* of this document**
10) **A section for Development & Implementation Phase, implementation of the database tier design via scripts – *requirement #7* of this document**
11) **A section for Development & Implementation Phase, generation of the Physical Schema Diagram via Oracle SQL Developer – *requirement #8* of this document**
12) **A section for Development & Implementation Phase, testing of your implementation of the database tier by executing some queries on a selected group of tables – *requirement #9* of this document**
13) **Finally, a conclusion section**

NEW HOTEL MANAGEMENT SYSTEM VERSION 2 TOP-LEVEL HEADER SUB-SECTIONS:

1. **Upgrade objectives**
2. **A section for 10 Business Reports Queries & explanation – results of *requirement #2* of this document**
3. **A section for 10 Business Reports Stored Procedures & explanation – results of *requirement #3* of this document**
4. **Finally, a conclusion section**

8. **Note that every section of the document should be clearly labeled and professionally created**. Don't just paste information without explanation of each section. Have an introduction section explaining the objectives or requirements of the project etc.
9. For each section, you are going to describe, keep your explanations short. I am not asking for an essay or report, but a well-documented information, that is easy to read and makes sense to the reader.
10. Your goal is to make it easy for the reader to understand from a high-level what you have done.
11. **The information from the list of requirements (not requirement #1) in this document are to be entered in each of these sections**.
12. **THIS DOCUMENT IS YOUR DELIVERABLE and you will be PAID/GRADED ON HOW THIS DOCUMENT IS FORMATTED, AND THE ABILITY OF THE READER TO EASILY UNDERSTAND WHAT YOU ARE DOING AND HOW**.

Requirement #2 (45 POINTS) – Create 10 Business Reports that a Business User would need to make BUSINESS DECISIONS (Reporting) using 10 SQL Queries (SELECT STATEMENTS) & SAVE the 10 queries to a SCRIPT FILE

- Requirements details:

❖ **Requirement #2a – (SCRIPT FILE #1) Create a NEW SCRIPT FILE BUSINESS REPORTS Script:**

1. Using the databased created in **PROJECT 1**, use **Oracle SQL Developer**, to ***CREATE*** and ***name*** a **NEW** script file designed to contain the **10 SQL QUERIES** representing REPORTS used by a Business Decision Maker in the **EZReservations.com Hotel Management System**.
2. ***Save*** & **Name** the script to file.

❖ **Requirement #2b – CREATE 10 BUSINESS REPORT QUERIES INSIDE SCRIPT FILE #1:**

- **BUSINESS REPORTS Implementation details:**

1. Create **10 SQL REPORT QUERIES** that a business decision maker of ***EZReservations.com***, a Hotel Executive, Hotel Managers, Hotel Customer Service Reps/check-in, Housekeeping, Public Customers or Corporate Managers, or any persona involved in this business would need to make a business decision.

   - **IMPORTANT! YOU ARE *DESIGNING* THESE REPORTS YOURSELF!!! YOU ARE GOING TO *DESIGN/CREATE* THE REPORTS BASED ON BUSINESS SCENARIOS THAT YOU WILL *DERIVE/DESIGN* BASED ON THIS TYPE OF BUSINESS!**
   - You will need to be **CREATIVE** and figure out which reports to create based on **business scenarios** that will require a business decision.
   - Your reports can leverage any of the activities of **objects/characters or personas** or scenario in this business. For example:

     - **Hotel Executives**
     - Marketing, Finance, Accounting, HR etc.
     - Front-desk associates (check-in, check-out etc., personnel)
     - Housekeeping management & staff (people who manage & execute the cleaning of the rooms, hotel, etc.)
     - Maintenance (people who manage and execute any repairs such as plumbing, electricians, carpenters etc.)
     - Customers (people who reserve, check-in and stay in the hotel and check-out etc)
     - Think of anyone who needs to make decisions in this business.

   - There are 2 parts to this process:

     a) ***DECIDE*** **the Business Scenarios**

     - Think/Create/Design the 10 Business Reports based on the Business Scenarios you come up with
     - You may need to research this type of business to come up with the business decisions needed by each of the persona's or business scenario you select
     - Some ideas may come from your experience of going to hotels etc.
     - **YOU WILL BE GRADED ON THE CHOICE OF REPORT AND YOUR CREATIVITY! YOU ARE EXPECTED TO DEVELOP BUSINESS REPORTS THAT MAKE SENSE! SIMPLE REPORTS SUCH AS LISTING ALL CUSTOMERS, ROOM ETC., ARE NOT DECISION-MAKING REPORTS UNLESS THERE IS A BUSINESS CONTEXT WHERE THESE QUERIES BELONG TO.**
     - **THESE REPORTS WILL CONTAIN JOINS OF MULTIPLE TABLES AND OTHER SQL LANGUAGE CONSTRUCTS THAT ENABLE MORE ADVANCED SEARCHES**

b) ***CREATE/DESIGN*** **reports using DATA MANIPULATION LANGUAGE (DML) SQL SELECT STATEMENTS for each REPORT**

- For each business report, create the **DML SQL STATEMENT TO EXECUTE the report and get an answer**
- When you create your **DML SQL STATEMENTS** for your **REPORTS**, keep in mind the following:

  - These **DML SQL Queries** are **SELECT STATEMENTS that will include JOINS, SUB-QUERIES, UNIONS etc**.
  - **Mathematical Computation** – Some **BUSINESS REPORT QUERY** that you create, may require mathematical computation:

    - In this case, use basic mathematical features of the DML SQL LANGUAGE where possible.
    - Try to use standard **DML SQL MATHEMATICAL STATEMENTS** such as **SUM, AVERAGE, TOTAL,** or whatever SQL construct needed. Some research and deep dive on queries will be required, etc.

  - Choose the table/tables to query based on business decisions that make sense. Don't just choose a table randomly, first think of a business scenario and decisions that affect the business or decision makes would need to make a business decision
  - You may have to populate new tables in order to achieve & test the business report you have created.
  - **YOU WILL BE GRADED ON THE CHOICE OF REPORT AND YOUR CREATIVITY! YOU ARE EXPECTED TO DEVELOP BUSINESS REPORTS THAT ARE TRULY DECISION-MAKING REPORTS! SIMPLE QUERIES SUCH SELECT * FROM TABLE OR SELECT * BASED ON ID ARE NOT DECISION-MAKING REPORTS UNLESS THERE IS A BUSINESS CONTEXT WHERE THESE QUERIES BELONG TO**

2. **The STEPS ARE AS FOLLOWS:** ***FOR EACH***, **QUERY REPORT**, do the following:

1) ***DECIDE*** ***the Business Scenario*** **for REPORT**
2) ***CREATE/DESIGN*** **the QUERY for the REPORT using SQL language in SQLdeveloper**
3) ***TEST/EXECUTE*** **the QUERY in SQLDeveloper**
4) ***TROUBLESHOOT*** **and fix any issue in the QUERY in SQLdeveloper until is working**
5) ***SAVE*** **the SCRIPT in SQLDeveloper**
6) ***DOCUMENT OBJECTIVES, PERSONA & DECISION***. **In your PROJECT/DESIGN DOCUMENT WITHIN THE CORRECT SECTION,** ***WRITE & DESCRIBE*** **the BUSINESS OBJECTIVES of the REPORT AND DECISION this QUERY REPORT will allow the BUSINESS DECISION MAKER to make. I WANT 1) SHORT DESCRIPTION OF THE REPORT OBJECTIVES/PURPOSE, 2) PERSONA THIS REPORT IS TARGETING TO MAKE A DECISION AND 3) THE DECISION THE REPORT WILL ALLOW**
7) ***LIST*** **the QUERY you created and** ***executed*** **BELOW THE DESCRIPTION OF THE REPORT from step 6.**
8) ***TAKE*** a **SCREEN-SHOT** of **THE WORKING RESULTS FROM THE EXECUTION** of the **REPORT in SQLDeveloper**.
9) ***PASTE*** the **SCREEN-SHOT** into the document ***after*** the **QUERY LISTING** in **step 7** to show ***proof*** of that your **QUERY REPORT** worked
10) LABEL EACH SECTION IN THE STEPS ABOVE APPROPRIATELY

3. ***SAVE*** your script file when completed with all **10 BUSINESS REPORT QUERIES**.
4. ***SUBMIT*** **your BUSINESS REPORT SCRIPT FILE, along with your** ***Design/Implementation PDF document*****. Details in deliverable section of this requirements document.**

Requirement #3 (45 POINTS) – Create/DESIGN STORED PROCEDURES for the 10 BUSINESS REPORT QUERIES from Requirement #2

- Requirement details:

  - **Requirement #3a – (SCRIPT FILE #2) CREATE STORED PROCEDURE SCRIPT FILE TO HOST the 10 STORED PROCEDDURES FOR THE 10 BUSINESS REPORTS FROM REQUIREMENT #2**

    1. Using **Oracle SQL Developer & Oracle 11g**, ***CREATE*** and ***name*** a **NEW script file** to store all the **DDL CREATE OR REPLACE PROCEDURE STATEMENTS** that you will use to implement **STORED PROCEDURES** for the 10 Business Reports.
    2. **This will be your SECOND SCRIPT FILE (SCRIPT FILE #2)**
    3. Save & Name the script to file.

  - **Requirement #3b – IN SCRIPT FILE #2, CREATE THE 10 STORED PROCEDURES & SHOW PROOF OF EXECUTION:**

    1. **INSIDE YOUR SCRIPT FILE, Create 10 STORED PROCEDURE TO HOST THE 10 BUSINESS REPORTS CREATED IN REQUIREMENT #2** using the **CREATE OR REPLACE PROCEDURE STATEMENT**.

       - ***ANALYZE/DESIGN*** each of the **10 BUSINESS REPORT** to determine **HOW** you can convert to a **STORED PROCEDURE**.
       - ***ANALYZE/IMPLEMENT*** the stored procedure to be **SCALABLE**! This means no **HARD-CODED DATA** that should be ***PASSED*** **USING PARAMETERS** in the **STORED PROCEDURE** to accept values from the **CALLING PROGRAM**.
       - For example, if you create a procedure to host the following query: selects * from employee WHERE = 1111, this is NOT ACCEPTABLE since is always going to return the results for employee 1111 only. The correct stored procedure would send the ID as a parameter (pID) therefore the query would be: select * from Employee WHERE ID = pID
       - **See Examples 1 thought 4 on page 20 to 51 in your CST3506- Lecture 1B Stored Procedures Part 2.**
       - Implement a STORE PROCEDURE for each of the reports using **Oracle SQL Developer**.
       - **EXECUTE EACH OF THE STORED PROCEDURE BY CALLING THE STORED PROCEDURE & SHOW PROOF OF EXECUTION IN YOUR PROJECT DOCUMENT**.

    2. **The STEPS ARE AS FOLLOWS:** ***FOR EACH*** **STORED PROCEDURE**, do the following:

       1) ***SELECT*** ***the Business*** **REPORT** ***to create as*** **STORED PROCEDURE**
       2) ***CREATE/DESIGN*** **the STORED PROCEDURE for the REPORT using ORACLE PL/SQL language** ***(Oracle native programming language & SQL)*** **in SQLdeveloper**
       3) ***TEST/EXECUTE*** **the STORED PROCEDURE for the REPORT in SQLDeveloper**
       4) ***TROUBLESHOOT*** **and fix any issue in the STORED PROCEDURE in SQLdeveloper until is working**
       5) ***SAVE*** **the SCRIPT in SQLDeveloper**
       6) ***DOCUMENT OBJECTIVES, PERSONA & DECISION***. **In your PROJECT/DESIGN DOCUMENT WITHIN THE CORRECT SECTION,** ***WRITE & DESCRIBE*** **the BUSINESS OBJECTIVES of the REPORT AND DECISION this QUERY REPORT will allow the BUSINESS DECISION MAKER to make. I WANT 1) SHORT DESCRIPTION OF THE REPORT OBJECTIVES/PURPOSE, 2) PERSONA THIS REPORT IS TARGETING TO MAKE A DECISION AND 3) THE DECISION THE REPORT WILL ALLOW. THIS SHOULD BE A COPY/PASTE FROM REQUIREMENT #2 WITH SLIGHT MODIFICATION INDICATING THIS IS FOR A STORED PROCEDURE.**
       7) ***LIST*** **the STORED PROCEDURE you created and** ***executed*** **BELOW THE DESCRIPTION OF THE REPORT from step 6**
       8) ***TAKE*** a **SCREEN-SHOT** of **THE WORKING RESULTS FROM THE EXECUTION** of the **STORED PROCEDURE in SQLDeveloper**.
       9) ***PASTE*** the **SCREEN-SHOT** into the document ***after*** the **STORED PROCEDURE LISTING** in **step 7** to show ***proof*** of that your **STORED PROCEDURE/REPORT** worked.
       10) **LABEL EACH SECTION IN THE STEPS ABOVE APPROPRIATELY**

3. ***SAVE*** your script file when completed with all **10 BUSINESS REPORT STORED PROCEDURES**.
4. ***SUBMIT*** your final **SCRIPT FILE #2**, along with your ***Design/Implementation PDF document*** **of REQUIREMENT #1 & 3. Details in deliverable section of this document**.

Requirement #4 (5 POINTS) – UPDATE the Executive Summary of the Design & Implementation Document reflecting what was done in this UPGRADE

- Requirement details:

1. ***UPGRADE*** the **EXISTING EXECUTIVE SUMMARY paragraph** in the ***Design & Implementation Document*** of **Requirement #1**.
2. **You have upgraded the application and the executive summary of your design & implementation document needs to reflect this.**

Project Exam Deliverables

Submit the following based on requirements:

DELIVERABLES DUE ON Monday April 11th, 2019

- Project deliverables:

    1. **DOCUMENT/FILE #1 (From Requirement #1)** – **PDF version** of the **Project Design & Implementation Word Document** which includes the information:

        a) Requirements steps **1 through 3** executed.

        b) Make sure you ***CONVERT*** this Word document to a **PDF file**

    2. **FILE #2** – Also submit the actual **DML QUIERY (10 REPORTS) SCRIPT FILE #2** **saved** from **Oracle SQL Developer**.
    3. **FILE #3** – Also submit the actual **STORED PROCEDURES SCRIPT FILE #3** **saved** from **Oracle SQL Developer**
    4. Summary of Final Deliverables:

        1) **PDF Project Design/Implementation Document with all requirements information, description, screen shots etc.(MS Word document converted to PDF) File #1**
        2) **10 Business Report Queries Script File #2**
        3) **Stored Procedures File #3**

- Due date **Monday, April 11th, 2019**

    - **DON'T WAIT TO START THIS PROJECT ON THE WEEKEND THAT IS DUE! START IMMEDIATELY**

- Put all these documents/files in a folder and WINZIP PACKAGE (in windows simply: **right-click folder|send to|compress (zip)** to compress folder. **DO NOT USE WINRAR!!!! WINZIP ONLY!**
- Send via email the following:

    1. Email a WINZIP PACKAGE to **arod1212@outlook.com** (**DO NOT cc arod@microsoft.com**)
    2. Email subject line should have the following syntax: **CST3604-YOUR FULL NAME-PROJECT 2**