WORLDSKILLS SINGAPORE QUALIFYING ROUND TEST PROJECT (TEMASEK POLYTECHNIC)

IT SOFTWARE SOLUTIONS FOR BUSINESS

SESSION 4

WSS2020_QR_TP_S4

Written by:
WorldSkills Singapore Expert
(Temasek Polytechnic)

CONTENTS

Session 4 of this Test Project consists of the following additional files:

1. WSS2020_QR_TP_S4.pdf (Session 4 instructions)
2. WSS2020_QR_TP_S4_MSSQL.sql (SQL Script to create tables with data for MSSQL)
3. User.csv (CSV file of new trainee information)

INTRODUCTION

In this session, you will continue developing the ASEAN Skills 2020 application. Due to the complexity and unique characteristics of hosting this event in Singapore, the WorldSkills Singapore Council has decided to hire you to develop an in-house customized system to support their various business processes during the preparation for the event and the actual event. The designer has provided you with some system documentation so that you can build it according to the client's needs. Take some time to carefully look through what has been provided and what is required. Prepare your own test data to help you to test the application. Document your test data, assumptions and any other key information in a Readme.txt file and save it with the other files that you are submitting.

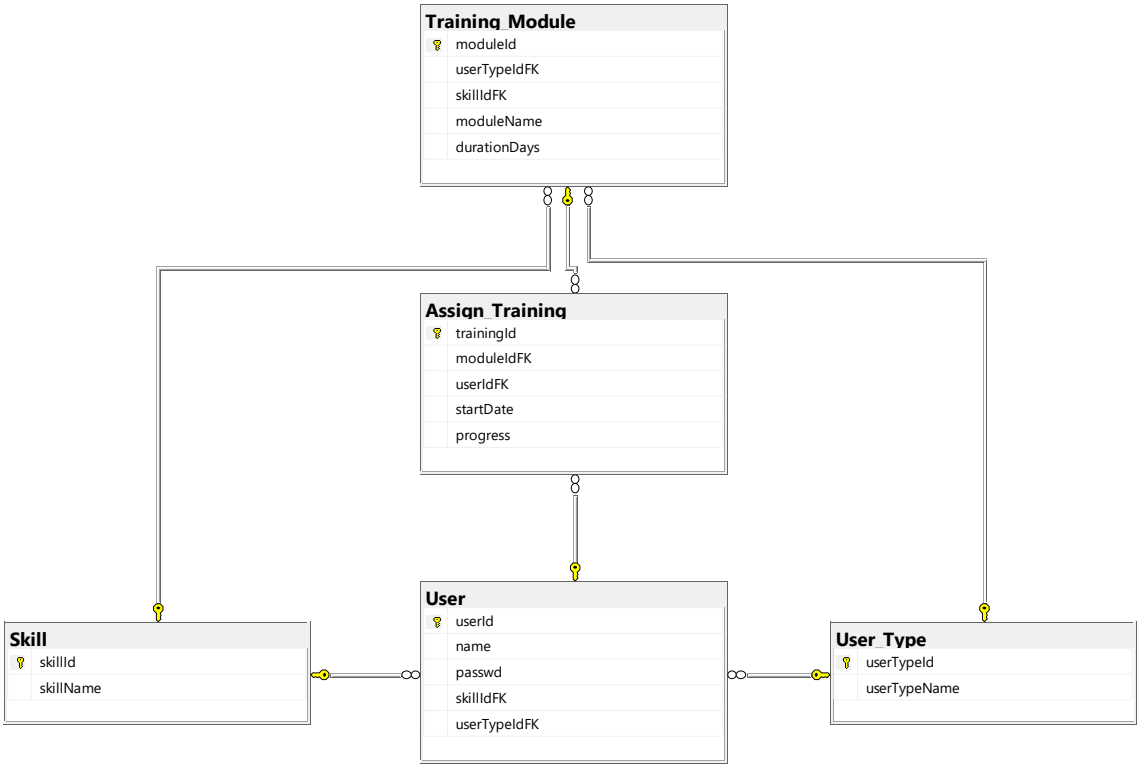
INSTRUCTIONS FOR THE COMPETITOR

In this session, you will be developing a desktop/web application (you decide which is more appropriate to meet the client's needs for this session). While developing this application, please ensure that you confirm to the following basic instructions:

- You should consistently follow the provided style guide throughout the application.
- Time management is critical to the success of any project so by the end of this session, you should submit the deliverables listed in next section so that the ASEAN Skills 2020 application will be finished on time. Any deliverables that are not submitted on time will not be evaluated.
- Make sure that you follow the provided style guide throughout all parts of the system.
- Make sure that you follow the general layout and flow of the screens as outlined in this document and the storyboard.
- Make sure that you provide appropriate validation and error messages throughout all parts of the system.
- Make sure that all relevant buttons/links are working at the end of the session.
- Make sure that you use appropriate naming conventions for all parts of the system as needed.
- Where applicable, include comments in your code so that it is easier for evaluators and the client to understand your code.
- Do note that you are building the entire system progressively so some functions may only be added in subsequent sessions.

WORKING WITH THE DATABASE

Create a database by the name of “Session4”. This will be the only database that you use in this session. Save this database in your main project folder. An SQL Script is provided for you. This script consists of the database structure and data required to complete the tasks in this session. As instructed by the designers, the database structure for this session cannot be altered (i.e. no adding or removal of tables, fields in the tables or data types). A CSV file with some data for the database is also provided. Instructions on what to do with this CSV file is provided in the Deliverables section below. To help you understand the database structure, the database designers provided an Entity-Relationship Diagram (ERD), which explains the conceptual and representational model of the data used in this database.



DELIVERABLES

4.1 Create "1. Login"

Create the screen for login to the application, as outlined in "1. Login" in the wireframe.

This screen can be accessed by all users. Only administrators, experts and competitors can successfully login via this screen. Include appropriate error checks and messages for data entry and unsuccessful login attempts. When a user successfully logs in, they will be automatically re-directed to the appropriate screen for that type of user. The administrator usually has a long list of experts and competitors for whom he needs to create accounts to access the system. Instead of tediously adding them one by one, the user can click on the box to select a CSV file from their local computer that contains all the trainees' account information and click on the "Upload" button. The system should then append the information from this CSV file to the database (i.e. no changes to the existing account information that already exist in the database). At the bottom of the screen, there should be a countdown time from the current date/time to 26 July 2020, 9am, when the competition officially starts. This time should be updated whenever this screen is loaded, but it does not have to count down in real-time on the screen.

4.2 Create "2. Admin main menu"

Create the screen for the main menu items for administrators to access, as outlined in "2. Admin main menu" in the wireframe.

This screen is only for use by the administrator to manage the training of the experts and competitors in preparation for this competition.

4.3 Create "3. Expert main menu"

Create the screen for the main menu items for experts to access, as outlined in "3. Expert main menu" in the wireframe.

This screen is only for use by experts to manage their training and track the progress of their competitors.

4.4 Create "4. Admin assign training"

Create the screen for administrators to assign training modules to experts and competitors for them to complete before the competition starts, as outlined in "4. Admin assign training" in the wireframe.

The user must first choose the skill that they want to focus on, from the drop-down list. The system currently only supports four skills – Software Solutions, Network, Cyber Security and Web Tech. The user then needs to choose the type of trainee he is assigning training modules for (i.e. experts or competitors). Experts and competitors have different

sets of training modules that they may need to complete. So, based on the type of trainee chosen by the user, the training module drop-down list should show the correct list of training modules for that type of trainee. This list should show the name of the training module and duration in the following format – Name (Duration in days) (e.g. "Basic programming (14 days)"). Each training module only needs to be completed once, so the drop-down list should only show the training modules that have not yet been assigned to that type of trainee. The user then picks the start date for the module by choosing a date from a pop-up calendar. Each training modules has an estimated duration (in days) in which it can be completed. So, when the user clicks on the Add button, the system should check whether the estimated end date for the training is before the start of the competition (i.e. 26 July 2020). If the estimated end date is after the competition start date, then the system should warn the user and stop the user from assigning this training module. If everything is okay, then the table should refresh to show the assignment of this training module. The user can repeat this process to keep adding training module assignments to this table. If the user made a mistake or changes his mind, he can click on a row in the table to select a training module assignment and click on the Remove button to remove this assignment from the table. The table should automatically refresh to show the updated information. Once the user is satisfied with all the assignments, the user can click on the Assign button to update the database. NOTE: When a training module is assigned to a type of trainee for a particular skill area, it means that it is assigned to all the people who are of that type in that skill (e.g. If I assign module AA to Web Tech competitors, and there are four competitors in the Web Tech skill area, then module AA will be assigned to all four of them). By default, when a module is first assigned to a trainee, their progress for that module is set to 0.

4.5 Create "5. Overall progress"

Create the screen for administrators to track the overall training progress of the experts and competitors, as outlined in "5. Overall progress" in the wireframe.

The user must first choose the skill that they want to focus on, from the drop-down list. The system currently only supports four skills – Software Solutions, Network, Cyber Security and Web Tech. The information displayed in the tables and chart on this screen will be refreshed to only cover the experts and competitors from the selected skill. The first table provides a summary of when the training modules were assigned. This first table should only show columns for training modules assigned to the experts and/or competitors, with the starting month of the training shown in the column header. The columns should be sorted by the starting month (i.e. Jan to Dec, from left to right). The information shown in this table refers to the number of training modules assigned to either the expert or competitor and that start in the month stated in the column header (e.g. if module AA starts in January and ends in July, it will be counted in the January column but it is not counted in the other columns). The next two sets of tables provide summaries of the training progress for the experts and competitors. In each case, the

columns should only include the training modules assigned to that group of trainees, sorted alphabetically (i.e. unassigned modules will not be shown in the table). A module is counted as Completed when the trainee has done 100% of the module. A module is counted as Not Started when the trainee has only done 0% of the module. If the trainee has done anything in between, the module is counted as In Progress. To further help the administrator to see the progress of the competitors more clearly, their training progress is also shown using a clustered column bar chart at the bottom of the screen, with three columns representing the number of competitors whose status are Completed, In Progress and Not Started for each of the assigned training modules. Again, unassigned modules will not be shown in this chart.

4.6 Create "6. Update competitor training"

Create the screen for competitors to update their training progress, as outlined in "6. Update competitor training" in the wireframe.

When competitors successfully login to the system, they will automatically be directed to this screen. On this screen, competitors can update the training progress for themselves or for their fellow competitors. The user must first choose the skill that they want to focus on, from the drop-down list. The system currently only supports four skills – Software Solutions, Network, Cyber Security and Web Tech. Once the skill is selected, the list of competitors who are participating in that skill will be shown in the drop-down list. Once a specific competitor's name is selected, the table will automatically refresh to show the training modules assigned to that competitor. The estimated end date refers to the expected date by which the trainee should complete the training, based on the designated start date and duration of the module. The user can then update the cell showing their progress for that module (only accept whole numbers between 0 to 100). The user can choose to keep the same progress or increase it, but they can never decrease the progress. The user can choose to sort this table by the name of the training module or end date (newest date on top and oldest at the bottom). The user can also search for specific training modules by name (e.g. if the user types in "Prog", it should show the results for "Programming" and "Programmer"), or by progress (i.e. Completed, In Progress or Not Started only). The table should refresh automatically to show the results of the sorting or search. Once the user has finished updating their training progress, he should click on the Update button to update the database.

4.7 Create "7. Update expert training"

Create the screen for experts to update their training progress, as outlined in "7. Update expert training" in the wireframe.

On this screen, experts can update the training progress for themselves or for their fellow experts. The user must first choose the skill that they want to focus on, from the drop-down list. The system currently only supports four skills – Software Solutions, Network,

Cyber Security and Web Tech. Once the skill is selected, the list of experts who are participating in that skill will be shown in the drop-down list. Once a specific expert's name is selected, the table will automatically refresh to show the training modules assigned to that expert. The estimated end date refers to the expected date by which the trainee should complete the training, based on the designated start date and duration of the module. The user can then update the cell showing their progress for that module (only accept whole numbers between 0 to 100). The user can choose to keep the same progress or increase it, but they can never decrease the progress. If there are many training modules assigned to the user, it could be hard to spot the ones that they should prioritize first because the deadline is approaching. So, the system should help to colour code the table to help users. If the estimated end date is less than or equal to two weeks from the current system date, then the row should be highlighted in yellow. If the estimated end date less than or equal to five days from the current system date, or current date has passed the estimated end date, then the row should be highlighted in red. The user can choose to sort this table by the name of the training module or progress (highest to lowest). The table should refresh automatically to show the results of the sorting. Once the user has finished updating their training progress, he should click on the Update button to update the database.

4.8 Create "8. Competitor progress"

Create the screen for experts to track the training progress of the competitors, as outlined in "8. Competitor progress" in the wireframe.

The skill area for the expert who is currently logged into the system, should be displayed at the top of the screen. This skill name cannot be changed.

The table shows a summary of the training progress of all the competitors in this skill area. The table should be sorted by the names of the competitors. The columns should only include the training modules assigned to these competitors, sorted alphabetically (i.e. unassigned modules will not be shown in the table). Each competitor and their training progress is listed as a separate row in the table. If a competitor has not started a particular training module, the background colour for that module for that competitor should be red.