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CS-4379B.502

**GUI Take Home Quiz #1**

1. (**40%**) Consider the templates for a polling-based interface and a time-driven simulation as well as the template for an event-based interface (all presented in class).

a. Develop a template for event driven simulation.

Event-Driven simulation allows a computer systems model to evolve according to a sequence of events. An event that occurs represents some sort of change in the model’s state. Objects in an event driven simulation model objects in the real world, because when we interact with objects in the real world, they react exactly as we expect.

**Some pseudocode:**

1. Create an initialization of the systems status
2. Event list is then initialized and rooted
3. While (simulation running)
   1. Collect statistics from current state, check system status
   2. Remove first event from list, make a decision then handle it with functional inputs
   3. Set time to the time of this event, update the system status
   4. Check for exceptions

4. Analyze data and record

2. Your task is to develop an interactive desktop-based system (product). The exact system you are assigned depends on the last digit of your student ID and is specified in the previous page.

**ID: A04584613**

“A computer managed interactive system that enables users to find rental apartments online.”

a. (**5%**) Please write the tasks identified with a sufficient level of detail. For example, a task selected for an ATM system could be the withdrawal of funds from your bank account. You must identify at least two distinct tasks with medium to high levels of complexity that can be accomplished using the system.

1. A task selected for a computer managed interactive apartment finding system could be for the user to change the maximum or minimum radius of distance away for potential apartment to rent. If a person wants to find an apartment closer or farther away from them, they should be able to redefine their scope of distance, making a more controlled and satisfactory outcome for the user.

2. A task for a computer managed interactive house and apartment locatingsystem could be for the website to display apartments that are currently available to be rented. When an apartment listing in the computer database is successfully rented, it will publicly remove the listing from the website so that inquiring persons would not waste their time by viewing a listing that is not available to rent, thus wasting the patrons time.

b. (**5%**) Define the following terms:

1) ***Effectiveness***: At minimum 95% of the users will complete at least 95% of the task of viewing publicly available apartments for rent, under a specific criterion, in less than 1 minute.

2) ***Efficiency***: Given **x** number of sentient users attempting to view **y** amount of publicly available apartments under specific criterion, at least 95% of the users will not expend more than 120% if resources expended by expert users attempting the same **y**-tasks, under the same specific criterion.

3) ***Satisfaction***: The mean score on the Software Usability Measurement Inventory (SUMI) scale would have to be greater than 55.

4) ***Productivity***: Given **x** number of sentient users attempting to change the **y** value of minimum/maximum distance away from a publicly available apartment under specific criterion, at least 95% of the users will not expend more than 120% if resources expended by expert users attempting the same **y**-task, under the same specific criterion.

5) ***Understandability***: Sentient users would have less than 2.5% of errors type 1 (assuming functionality is not available within the system) and less than 2.5% of errors type 2 (insufficient knowledge of available system functionality) when locating an apartment.

6) ***Learnability:*** The average user would be able to learn how to achieve a satisfactory level of user productivity after **x** number of attempted executions of finding available apartments, based on some specific criterion.

7) ***Operability:***The average public user would be able to successfully operate an interactive system based on its created purpose of changing the desired apartment distance radius after **x** number of attempted executions, based on some specific criterion.

8) ***Attractiveness*:** An average of 98% of sentient users would rank their experience interacting with the apartment finding interactive system with a satisfaction level of 8.75 (1 representing extreme unattractiveness, 10 representing extreme attractiveness).

c. (**50%**) Develop the code of a QT interface module for one of the two tasks listed by you in section (a). You do not have to execute the code.

i. Your code should include a quit button and at least 4 “meaningful” widgets to be used in the flow of the task selected. Meaningful widgets include sliders, spin-boxes, radio-buttons, check-buttons, drop-menus, and knobs.

ii. At least one of the widgets should be connected to an LCD.

iii. Use distinct widgets.

**Task 2:** User can change the maximum or minimum radius of distance away for potential apartment to rent. If a person wants to find an apartment closer or farther away from them, they should be able to redefine their scope of distance.

d. (10% - extra) Please provide a screenshot of your interface module (assuming it executes) as well as the code for execution.