Workshop - 7

Workshop Value: 10 marks (4.375% of your final grade)

Please review the following documents:

1. Workshop **Grading Policies**
2. Workshop **Submission Procedures**
3. Workshop **Group Breakdown**

Workshop Overview

As you have probably recognized by now, computer systems and applications are all about data. Data is always introduced to the system or application at some point as input. Data input is traditionally accomplished by using a keyboard or mouse, but it is important to be aware there are many other ways to obtain data input.

Computer applications can also obtain data input by "pulling" it from some other source (other than a human/end-user). This source can be local (on the same machine) or remote (using the internet). There are many methods available to "pull" data and you will be learning about these in the coming semesters. The most common however, involve files, databases, and web-services.

Another widely used method of data input is accomplished using scanners. These are often used in retail stores to scan barcodes for easy data entry. Use of this type of technology is extremely efficient when compared to a manual human method of input – especially if you can use this technology automatically without even human intervention.

This workshop is an introduction to using more modern methods of data input and to integrate it into your solutions which ultimately add more efficiencies to daily business processes.

Workshop Details

A car wash business is looking for a system that will further automate their daily redundancies - more specifically, the processing of customers who line-up for a car wash.

To address most of the inefficiencies and costs, the operation has decided to use a **fully automated computer kiosk** approach (like a drive-thru) which will eliminate the need for a cashier to manually process each customer car wash request and payment.

Regular customers can simply drive up to the kiosk, select a wash option, make a credit card payment (NO CASH), and proceed to get the car washed.

The new approach in processing customer transactions has opened an opportunity to offer **prepaid monthly memberships** that permits up to 2 washes per day.

> **Note**: The process of signing up for VIP membership is not done through the kiosk system and therefore does not have to be defined for this workshop.

At the time when monthly members create their account (**not done using the kiosk**), they select the default wash option they want to sign-up for and are charged accordingly for that selection (**this is the wash option they have prepaid for**).

Members will have a stick-on barcode chip affixed to their vehicle windshield. Vehicles approaching the kiosk station are automatically scanned by the system and if a stick-on chip is successfully detected and read, members can be identified including all the details of their membership contract information.

Members have the **option to override** the default wash option they signed up for (applies only to that one wash and does not affect their subscription agreement).

If a member chooses a **different wash option from their agreement**, regular rates will be charged for the selected wash option (even if it is a less expensive option).

> **Note**: If a member wants more than 2 washes on the same day, the customer will have to pay regular rates.

Car Wash Options	
Basic	**$ 5.50**
Clean	**$ 8.75**
Super Clean	**$12.50**

You do not have to describe the details of what is printed on the receipt, but a receipt should be generated.

Work Breakdown

[Logic 1] Define the logic for a **regular** customer who must pay for the selected wash option to get their car washed.

[Logic 2] Define the logic for a **monthly member** who will not have to pay because they are applying the wash option that was prepaid for as part of their membership agreement.

[Logic 3] Define the logic for a **monthly member** who wants a different wash option from what was prepaid for in their membership **OR** has exceeded their two-wash limit for the day.

[Group Solution] Create a "main" process that calls the appropriate defined subprocesses to produce a complete solution to the problem.

Your Task

Individual Logic Assignment

1. Determine your individual assigned logic part based on your member# (see **Group Breakdown** link at the beginning of this document)
2. Where applicable, apply the core components of the **computational thinking** approach to problem solving to help you synthesize a solution
3. Submit your individual assigned part to your professor (see **Submission Procedures** link at the beginning of this document)

Group Solution

1. In the week the workshop is scheduled, you will be working in your assigned sub-group. See **Group Breakdown** link at the beginning of this document for details on how the sub-groups are determined.
2. Please review what is expected as described in the **Grading Policies** link at the beginning of this document.
3. Submit your group solution to your professor (if you are handing in physical paper answers, follow the directions as set by your professor, otherwise, refer to the **Submission Procedures** link at the beginning of this document)

Presentation

Decide among yourselves which member among you in the **sub-group** will be doing a presentation. Priority should be given to those who have not yet done one. Refer to the **Grading Policies**, and **Submission Procedures** links for details on deadlines, expectations and how to submit your work.