OO Analysis and Design Lab Week 1

# Purpose of Lab

# Create analysis models from a requirements specification.

Learning Outcome:

Review use case diagrams and domain models.

# Instructions:

1. Identify Actors
2. Identify Use Cases
3. Sketch a use case diagram to model functional requirements.
4. Create a summary description for each use case in table format.
5. Identify any Business Rules
6. Identify important concepts.
7. Sketch a class diagram to illustrate concepts and their relationships.
8. Use Visual Paradigm to create final version of use case and class diagrams.

**Notes**

1. Please identify any assumptions you make.
2. Draw up a list of suitable questions using

“who,” “where,” “when,” “what,” “how,” and “why.” that you would ask the customer of this system to help you better understand the requirements. The first step in formulating questions is to assess the level of importance of the basic question words “who,” “where,” “when,” “what,” “how,” and “why.” The first four are classified as informational since these questions generally gather factual information or knowledge such as “What is the goal for this activity?” or “Who are responsible in spearheading the event?” The last two question words belong to the analytical category since these questions require a higher level of thinking and a deeper means of understanding a concept.

# Problem Specification

A computer system is required that will support the Davin’s garage business. The garage is located in a busy suburb of Cork city. The garage provides the following services; car servicing and car repairs. The business is ideally located to serve the people of Cork.

* C*ustomers bring their vehicles to the garage for servicing and repair. The garage offer a full vehicle service on all car models and light commercials.*
* *Each vehicle service is carried out according to manufacturer’s specifications and all work is guaranteed.*
* *The garage offers a number of different types of services.*
* *A service /repair needs to be booked in advance. Each type of service is allocated a fixed amount of time. When a service is carried out on a vehicle additional faults may be identified. The mechanic notifies work manager of these faults and customer in turn is notified. Customer must authorize any additional work to be carried out. If agreement is given then the work can be carried out the same day if bay slot and mechanic are free. If not vehicle needs to be booked in for another session.*
* *The garage offers a tyre fitting service which is free when a tyre is purchased*
* *A garage attendant checks the vehicle in when customer arrives to have vehicle serviced or repaired.*
* *If a vehicle needs to be booked in for repairs a work manager inspects it and creates a job specification which will detail work that needs to be carried out. This is useful as it gives the customer an idea of the estimate of cost of works. A customer may have specific requests.*
* *He then schedules the job and assigns a mechanic to complete the specified tasks. The garage has work bays where all work is carried out. Only one vehicle can occupy a bay at any one time. Only one mechanic will be working on a vehicle at any time.*
* *When the repairs are being carried out if any new problems are discovered the customer needs to be consulted to approve changes to job specification. If customer agrees to changes, the job specification is modified by the workshop manager before carrying out the work.*
* *When the job is finished the mechanic completes a report detailing the time spent, work done and materials used.*
* *This information is used by the attendant to create an invoice for the customer when they come to collect their car.*
* *The garage offers a local collection and delivery service. It also offers a courtesy car if required.*
* *The vehicle will only be released on payment of invoice. Payment can be made using any of the usual payment methods*

**The following are an example of services offered.**

* brakes repairs
* car batteries
* car diagnostics
* car puncture repairs
* car repairs
* car servicing
* car suspension adjustment
* engine diagnostics
* exhaust systems
* mechanics
* oil change
* steering adjustment
* tyre fitting
* van repairs
* wheel alignment
* wheel balancing
* bumper repairs
* car accident repairs
* car body repairs
* car brakes
* diesel engineers
* engine reconditioning
* diesel fuel injection
* fuel injection adjustment

**Payment methods**

* Visa
* *Debit Card*
* Paypal
* Cash