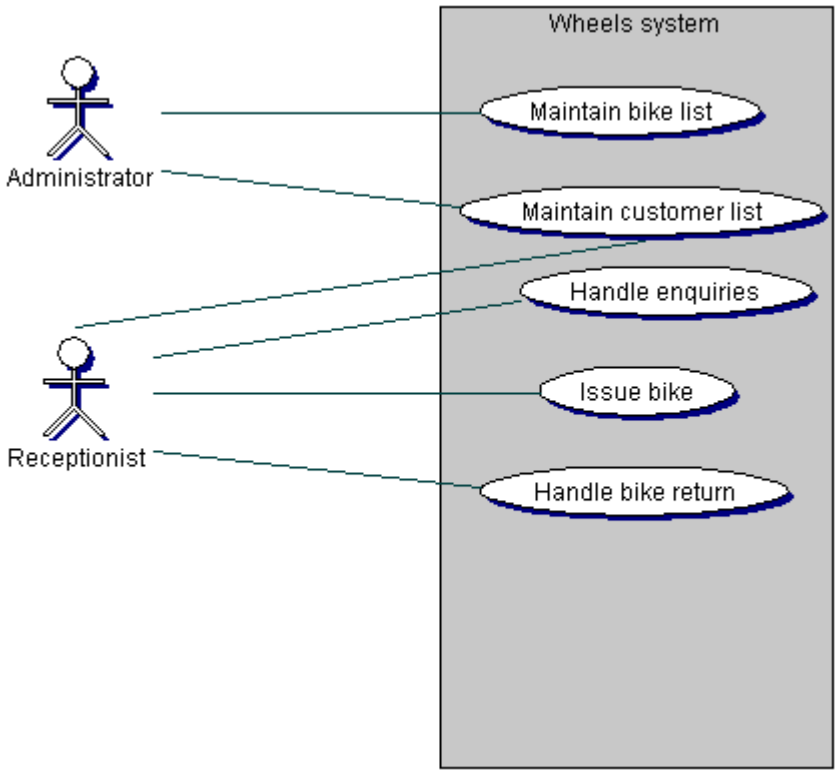
Software Development 3

Creating and using Use Case diagrams in Visual Studio

1) Start up Visual Studio, make sure that you have a Modelling Project within your current solution space.
2) Drawing Use Case diagrams in VS is intuitive, the video “Usecase.wmv” describes the process of adding actors, systems, use-cases and associations to a diagram. Create a blank diagram and familiarise yourself with adding elements to it.
3) In Visual Studio create the following diagram based on the cycle hire example (based on Britton and Doake 2005):



4) Each of the simple use cases in a system such as that in step 5 should be accompanied by a high level description like this (based on Britton and Doake 2005):

> ***Use case:*** *Issue bike*
> ***Actors:*** *Receptionist*
> ***Goal:*** *To hire out a bike*
> ***Description:***
> *A customer chooses a bike to hire. The receptionist looks up the bike on the system, informs the customer of the cost. The customer pays, is issued with a receipt, then leaves with the bike.*

5) Consider the following use case descriptions based on a University student records system:

Use case: *Matriculate*
Actors: *Student*
Goal: *To matriculate into the University*
Description:
The student enters their personal details (name, address, date of birth) and their University reference number. The system will then enrol the student on a set of modules for their programme.

Use case: *Produce a class list*
Actors: *Module Leader*
Goal: *To produce a class list*
Description:
The module leader enters their module number into the system. The system will find each of the students and produce a list of all the students who are enrolled on that module.

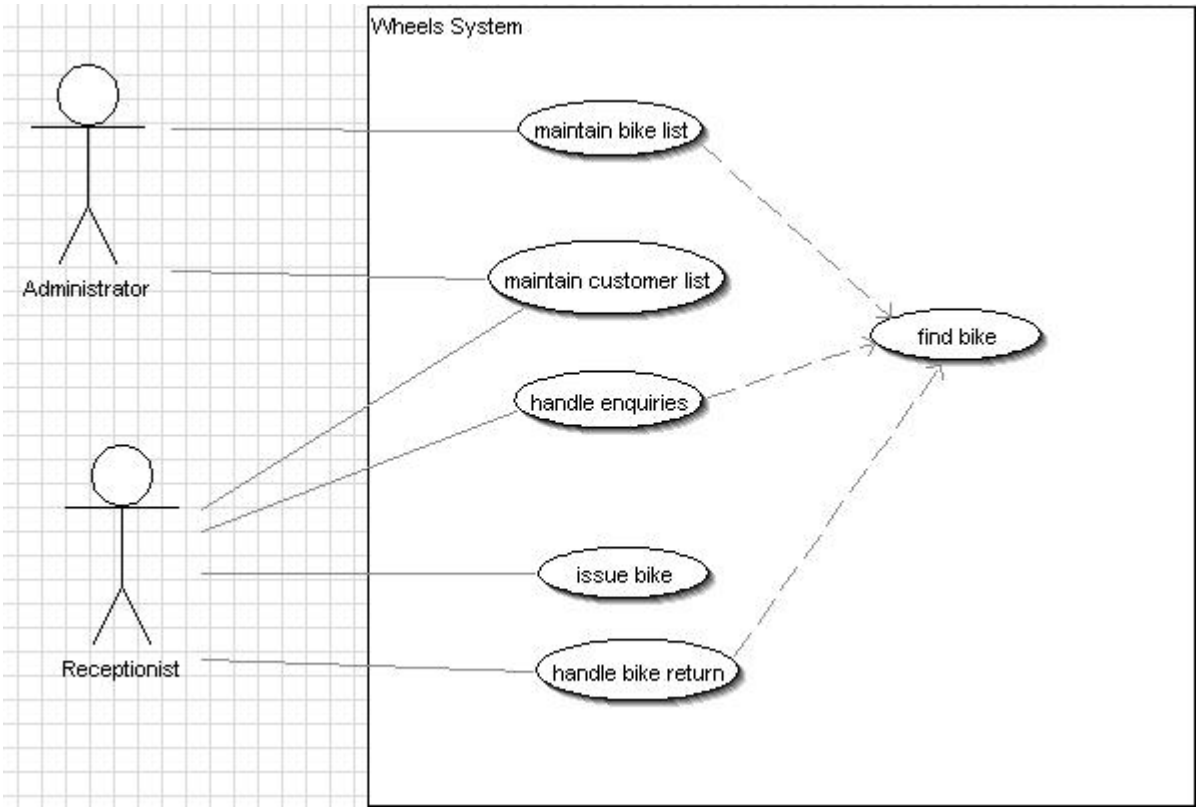
Use case: *Enter results*
Actors: *Module Leader*
Goal: *To record results for an assessment*
Description:
For each student on their module the module leader enters a matriculation number, the system will then find the student and allow an assessment mark to be added.

Use case: *Get results*
Actors: *Programme Leader*
Goal: *To obtain module results for a student*
Description:
The programme leader enters the matriculation number of a student into the system. The system the finds that student and presents the results obtained by the student on each of their modules.

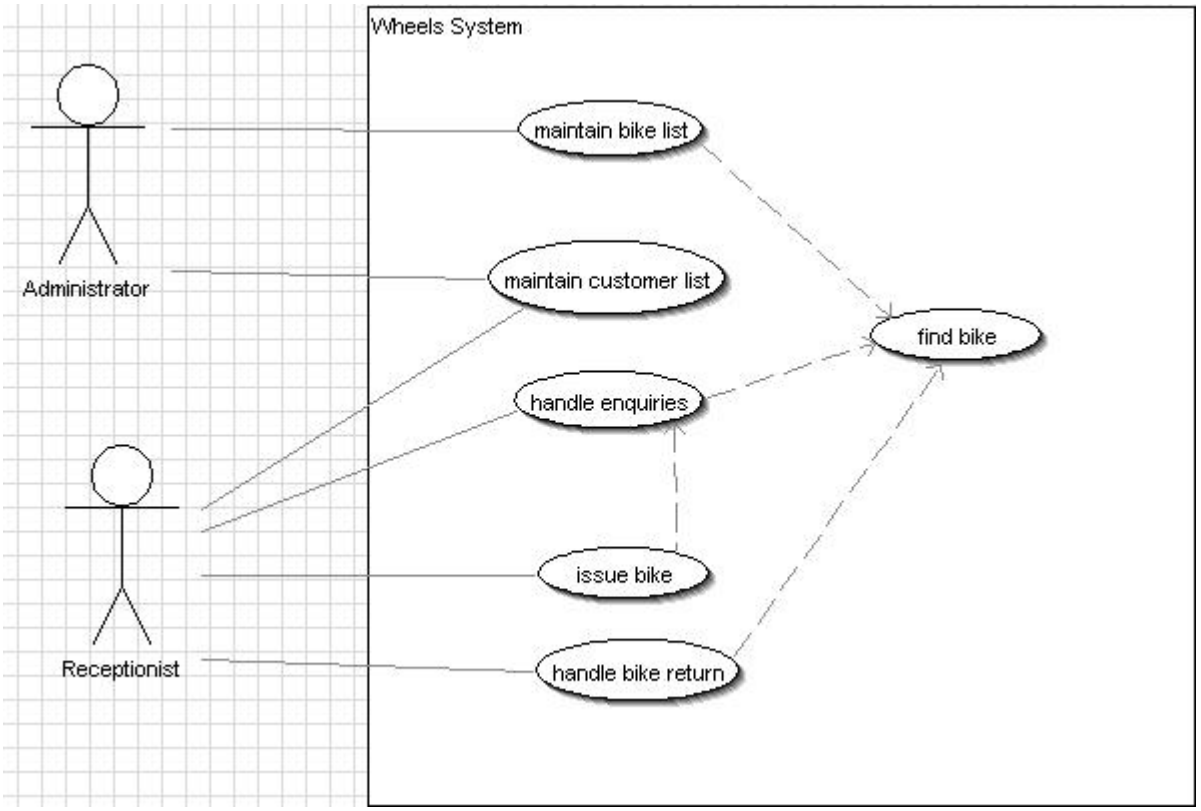
Using the above use cases, produce a use-case diagram in Visual Studio. Ensure that you embed the descriptions within the diagram.

6) Within a set of use cases there may exist behaviours that are common to several of them. For instance in the bicycle hire system in step 5 several of the use cases require a bike to be found. We can therefore create an additional common behaviour called “find bike” and link it to those use cases

that require it. This form of link is known as an “<<includes>>” link (the includes link may be accessed from the same toolbar as the associative link we have used until now).



7) The <<includes>> relationship may be used to link together any two use cases or behaviours where use of the one includes a repetition of the other. To take the bike hire example, suppose we discovered that in order to issue a bike the operations involved in handle enquiry were repeated. We would represent this as follows:



8) Referring to the student records system diagram created at step 7, identify any common behaviours within the student records use cases. Add additional behaviours and <<includes>> links as required.