J7D948 Software Development

# Assessment Description

# Project instructions

This is an open book project covering all Outcomes. The project is broken down into two stages. Stage 1 is the program implementation and Stage 2 is the testing of the completed program.

You are required to implement an application for the Hospital database that you completed in Database Management unit. You need to consider the ERD of Hospital and the design documentation provided. Please note that the provided class diagram is a sample and represents the minimum requirements for the application. If you would like to follow your class diagram, it must be included in your documentation. The use of a graphical interface is optional for this assessment, but highly recommended. The program should be written in Object Oriented Paradigm and should be connected to Hospital database to save and retrieve data.

All the Evidence Requirements which you must achieve are detailed after the Project Description.

This project will be carried out under supervised and unsupervised conditions, i.e. you may work on this in your own time. The assessor will check the authenticity of any work you have done unsupervised. This may involve methods such as interviews, demonstrations, checking files, etc. and may be carried out at random and pre-arranged times.

The assessor will specify the various deadline periods for the project. It is up to you to determine your own deadlines within these. You may decide to work on multiple tasks at the same time but you should try to fully complete and achieve one stage before completing the next.

You should read all the Evidence Requirements for each stage and clarify any points with the assessor before you commence the project.

You are required to read the following brief and then complete the stages detailed below:

# Project Description

You are a small consulting company specializing in developing software for the medical industry. You have just been awarded the contract to develop an application for a Hospital database for a mid-size health insurance company to keep track of health claims including patient information, provider(doctor) information, information about patient visits to their doctor as well as prescription drugs prescribed to patients.

Information such as patient name, address, phone, email etc. are needed as well as who each patient’s primary care doctor is, their insurance ID number and insurance company name. We also want information on each doctor such as their specialty and their phone, address etc. The prescriptions given to each patient by a health-care provider also need to be tracked in this particular database at this time to determine claim eligibility including some basic information on the drug being prescribed to make sure there are no conflicts with a patient’s other prescriptions. We need to know each drug’s name, purpose/use and possible side effects. Eventually, the application will be used to track trends and for some extrapolative modelling based on the accumulated data. The database and system will be accessible in English only right now.

# Stage 1— Implementation

You are required to implement the program in an object-oriented manner. The solution must demonstrate each of the following:

**Design requirements:**

♦Abstraction, encapsulation and information hiding used where appropriate

♦Inheritance used

♦Polymorphism used

♦All class-wide variables are private to prevent content coupling

♦Class-wide variables are kept to a minimum to ensure a minimum of common coupling

♦Data coupling is used (parameter passing) in preference to content or common coupling

♦Program does not contain a lot of unnecessary data coupling

♦Classes are highly cohesive

**Implementation requirements:**

♦A working solution which meets the requirements of the given brief

♦Variables are correctly declared and initialised

♦Arithmetic and/or logical operators are used correctly

♦A range of control structures are implemented correctly

♦At least two data structures are implemented correctly

♦The program contains classes, which contain attributes, methods and a constructor method

♦Objects are created from the classes, with appropriate initial attribute values set through the constructor methods

♦The program contains at least one overloaded method (this may be a constructor method)

♦Classes are linked appropriately through association, aggregation or inheritance relationships

♦Parameters are passed correctly both within and between objects

♦Appropriate access types are defined for methods, attributes and classes

♦Use of pre-defined classes and/or methods from the standard object library

♦The program appropriately handles errors with exceptions or pre-validation

♦The program code is commented appropriately throughout

# Stage 2 —Testing

After completing Stage 1 you are required to develop a test plan and test the completed program. The test log should identify any areas where the program fails, and detail any fixes and retests required. I will supply a sample Test Plan and Log to show you the standard expected.

# Stage 3 – Complete Package

You should hand in –

* Complete Java code
* Amended Class Diagram that matches your implementation.
* Test plan and log
* A paragraph on the test strategies and methodologies used