**Inception phase action plan report (20% of final mark).**

**The tables below illustrate how the marks for this stage should be split and possible approaches and mark distribution for each topic.**

**Analysis of the project assignment brief (up to 14 marks).**

**Student Name: Student Number:**

|  |  |  |
| --- | --- | --- |
| **Topic** | **Method/approach** | **Mark** |
| Interpretation of the project assignment brief. | The interpretation should list and discuss the potential system(s) that the client would like to be developed.  Possible mark distribution — 2 marks for a good interpretation, 1 mark for a valid interpretation and 0 marks for a very poor interpretation. |  |
| Initial functional and non- functional requirements and initial top level use case model. | List all the functional requirements for the proposed system(s).  List all the non-functional requirements for the proposed system(s).  Produce a top level use case model that shows the identified use cases for the system(s).  This may well be split into separate top level use case models where the learner has recognised the potential for multiple systems.  Possible mark distribution — up to 4 marks for this topic (this could be reduced to 3 marks if more marks are allocated to the aims). |  |

|  |  |  |
| --- | --- | --- |
| **Topic** | **Method/approach** | **Mark** |
| Information gathered to clarify the brief eg background research, such as looking at similar problems. | A range of fact finding techniques could be used to clarify the brief including looking at similar systems, questionnaires, background reading, observation and interviews.  *the learner could:*   * prepare and conduct an interview * observe and informally discuss the requirements with client   The learner should adopt a number of techniques appropriate to the brief being used.  Possible mark distribution — up to 3 marks for this topic. |  |
| Aims of the project assignment. | The learner should recognise the main aim of the project assignment, ie they are expected to develop a prototype application for a part of the system identified in the brief.  Possible mark distribution — up to 1 marks for this topic although this may be more for scenarios that have more than one specific aim. |  |
| Identification of resources, and materials required and how they will be accessed/obtained eg development environment. | The learner should list the resources required and discuss how they will be accessed/obtained.  These might include:   * hardware required (eg PC, access to Internet & printer) * software required (eg Office Applications and Development Environment) * books, journals, tutorials   Possible mark distribution — up to 2 marks for discussing how the resources will be accessed/ obtained (see also Project plan). |  |

|  |  |  |
| --- | --- | --- |
| **Topic** | **Method/approach** | **Mark** |
| Identification of information sources to be used. | The learner should identify a number of appropriate information sources. They must use formal referencing to obtain all of the marks for this topic.  Possible mark distribution — up to 2 marks for this topic. |  |

**Project plan — up to 6 marks**

|  |  |
| --- | --- |
| **Topic** |  |
| Production of a formal plan to undertake the project with realistic timescales and identifying. | The use of appropriate project management software for this topic should be encouraged.  The evidence for this topic could take the form of a draft project plan produced using appropriate project management software as illustrated in the sample solution. |
| Schedules for each stage and overall completion. | The scheduling of the tasks in the development stage should reflect a recognised software development methodology.  The scheduling should reflect task dependencies and should try to identify possible concurrent tasks.  The solution planning milestone could well be concurrent with the development milestone.  The final milestone should be scheduled earlier than the given project end date to allow slippage. |
| Milestones and deliverables. | List all deliverables to all stages of the project:   * Inception phase planning report * Documentation for feasibility meeting * Solution planning report * Development stage documentation * Evaluation report |
| Main tasks. | Each of the main tasks required to complete the project should be identified and given draft durations. Any potential task dependencies should be identified. |
| Resources. | List an appropriate set of resources required. |

**Solution planning report (20% of final mark)**

**The tables below illustrate how the marks for this stage should be split and possible approaches and mark distribution for each topic.**

**Solution plan — analysis and design (up to 20 marks)**

|  |  |
| --- | --- |
| **Topic** | **Method/approach** |
| Undertaking the analysis using appropriate techniques. | The learner should provide evidence of having undertaken analysis for both the business model and the view model for the system being developed. The evidence should show the use of appropriate techniques which may include:  **Business model**  Identification of classes, methods and attributes – (possible methods would include. textual analysis, CRC cards, use case scenarios and/or activity models). (3 marks)  The top level Activity diagram or Sequence diagram for the system being developed should also be included here. (2 marks)  **View model**  Identification of an appropriate data binding model to link the view to the underlying business model. (2 marks)  User analysis to try to ensure the HCI designed meets the needs of the potential users. (1 marks)  Possible mark distribution — up to 8 marks for this topic. |
| Evidence for the analysis and design of the prototype application for the given brief. | The learner should provide evidence of analysing and designing a prototype application for the system being developed. The evidence may include:  **Business model**  Static model — class diagrams should clearly show the visibility of the attributes and methods for the classes. Associations should show direction and multiplicities. Inheritance and/or interfaces should be shown as appropriate to the scenario. (6 marks)  Dynamic mode — (eg use case models, sequence diagrams). (2 marks)  Both the static and dynamic models should be produced using UML. |

|  |  |
| --- | --- |
| **Topic** | **Method/approach** |
|  | **View model**  UI design – this should be justified using appropriate design principles. (2 marks)  Data binding design — how the UI objects will link to the business model. (2 marks)  Possible mark distribution — up to 12 marks for this topic. |

**Development stage (40% of final mark)**

**The tables below illustrate how the marks for this stage should be split and possible content for each topic.**

**Production of application (up to 25 marks)**

|  |  |
| --- | --- |
| **Topic** | **Content** |
| Coding of the problem domain (up to 5 marks for this topic). | Up to 5 marks for implementing the business model.  The mark given for this topic should reflect how well the learner has implemented the planned business model design. The criteria used to award the marks is likely to include the following:   * Does the code match the design? * Does the code make appropriate use of inheritance and/or associations? * Does the code make appropriate use of scope operators? * Does the code make appropriate use of setters and getters and/or properties as appropriate? * Does the code make appropriate use of constructors? * Are the methods and attributes coded correctly? |
| Coding of the UI domain (up to 5 marks for this topic). | Up to 5 marks for implementing the view model.  The mark given for this topic should reflect how well the learner has implemented the planned view model design. The criteria used to award the marks is likely to include the following:   * Does the solution match the design? * Appropriate use of UI controls to ensure that the data entered is valid (eg validation routines and/or error prevention). * Coding of appropriate events. * Does the code link appropriately to the business model? |

|  |  |
| --- | --- |
| **Topic** | **Content** |
| Use of unfamiliar libraries and/or constructs (up to 5 marks for this topic). | Up to 5 marks for the appropriate use of unfamiliar libraries and/or constructs which have been introduced through learners self-research.  When marking this topic, the assessor must be aware of the libraries and constructs that learners have been exposed to during the learning process. The mark awarded should reflect both the quantity and complexity of the libraries and/or constructs used. For example appropriate use of an unfamiliar simple UI object might be awarded with a single mark in contrast to the use of an unfamiliar data binding construct which might gain 2 marks. Another way in which learners could obtain marks here is to use some unfamiliar features of the development environment such as the use of the unit testing features in Visual Studio or Eclipse which might well be awarded up to 3 marks. The full 5 marks should only be awarded if the learner includes appropriate references to the sources used to investigate the library or construct. |
| Error handling (up to 5 marks for this topic). | Up to 5 marks for coding error handling and/or error prevention, eg use of exceptions.  The mark for this topic should be based on the code provided for both the business and view model. The view model should ideally include the use of some selection UI controls (error prevention), validation routines (where appropriate) and some exception handling (error handling). The business model should ensure that invalid data is appropriately handled and ideally should include some appropriate use of exceptions.  In order to obtain the full 5 marks, the business model must throw some appropriate exceptions (or equivalent) that are appropriately handled by the view model. |

|  |  |
| --- | --- |
| **Topic** | **Content** |
| Internal documentation (up to 5 marks for this topic). | Up to 5 marks for the internal documentation, standard documentation, naming conventions and appropriate use of indentation.  The mark for this topic should be based on code provided for both the business and view model. In order to get the full five marks, the learner must have **consistently** abided by appropriate naming conventions and indentation rules. In addition, the internal comments should be readable and abide by a recognised standard format such as Microsoft’s XML documentation schema or Oracle’s JavaDoc. |

**Testing (up to 10 marks)**

|  |  |
| --- | --- |
| **Topic** | **Content** |
| Test plan (up to 5 marks for this topic). | Up to 5 marks for designing test plan and test cases. This may include the development of test harnesses.  This should include the strategies used to test both the business model (eg talking about unit testing) and the view model (eg functionality testing and usability testing). The test cases produced should include evidence to illustrate that the learner has applied appropriate techniques to select test values, eg appropriate black box and/or white box techniques.  A learner may well decide to design a number of test harnesses for the unit testing of the business model. If this approach is taken, they should include some documentation (possibly in the internal documentation) to explain why the text values used were selected. All of the methods in the business model classes should really be tested.  The functionality testing of the view model should ensure that the UI behaves as expected. This should look at each of the events coded and ensure that the UI responds appropriately (eg validation events should display appropriate error messages) and in terms of updating the underlying business model appropriately. |
| Test runs (up to 5 marks for this topic). | Up to 5 marks for running, documenting and evaluating test runs.  The learner should provide evidence of having run and documented the test cases identified in the test plan. This may be in the form of test harness outputs for the unit testing. A learner should not be awarded the full 5 marks unless there is good evidence of evaluating the results of test runs. |

**Documentation (up to 5 marks)**

|  |  |
| --- | --- |
| **Topic** | **Content** |
| User documentation (up to 5 marks for this topic). | Up to 5 marks for developing appropriate user documentation — this may also include online help features.  This may take the form of a traditional user manual and/or online help features. The view model should also provide appropriate feedback and visibility for the user. An installation guide might also be provided if appropriate for the prototype application developed. |

**Evaluation stage (20% of final mark)**

**The table below illustrates possible content and mark distribution for each topic. An assessor should allocate marks by using their judgement based on the project scenario.**

**Evaluation (up to 20 marks)**

|  |  |
| --- | --- |
| **Topic** | **Content** |
| An outline of the assignment and to what extent the solution met the original requirements of the assignment brief. | Possible mark distribution — up to 4 marks.  This should include a brief summary the requirements identified in the original inception phase planning and then discuss each requirement in turn. A good response will include some sensible justifications as to why or why not the requirements were met. |
| An assessment of the strengths and weaknesses of the outputs of the practical assignment. | Possible mark distribution — up to 4 marks.  This should cover all of the outputs of the practical assignment including the technical documentation, user documentation and the prototype application developed. A good response will include some appropriate justifications for each strength and weakness identified. |
| Recommendations for any future development of the solution and reasons for these recommendations. | Possible mark distribution — up to 4 marks.  This should identify a range of suitable recommendations. A good response must include appropriate reasons for each recommendation. |
| A summary of any modifications to the project plan, solution design and/or implementation that were made during the project. Including reference to any unforeseen events and how they were handled. | Possible mark distribution — up to 4 marks.  This should identify any modifications that were made during the development. A good response would include appropriate reasons for the changes and how they impacted on the development. The response should recognise  at least one unforeseen event. |

|  |  |
| --- | --- |
| **Topic** | **Content** |
| Identification of any knowledge and skills which have been gained or developed while carrying out the project assignment and how the actions/process of carrying out the project could have been improved. | Possible mark distribution — up to 4 marks.  This should identify the knowledge and/or skills developed or gained – a good response will explain how and why these have been achieved.  The learner should identify how the development process could have been improved — a good response will include appropriate justifications for the improvements. |