**ERRATUM**

The Software Development Text Book was printed and distributed before some of the VCAA Study Design documentation was made available. This page is to support users of the textbook with updates.

Programming Requirements: <https://www.vcaa.vic.edu.au/Documents/vce/computing/2020_VCE_AppComp_SoftwareDev_Programming_requirements.docx> (Same as in the textbook on page: 107)

**Unit 3 Outcome 1 Programming Folio SAC**

SAC U3O1 Assessment Support (VCAA): <https://www.vcaa.vic.edu.au/Documents/vce/adviceforteachers/computing/2020SoftwareDevelopmentPerformanceDescriptorsU3O1.docx>

The assessment criteria for the U301 SAC came out after publishing. The tasks on pages 130 – 136 can still be used for this assessment, *but a report is also required*.

Ensure you use the following criteria. I have suggested marks to allocate to each section of the table.

**Response to the Requirements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Very low** | **Low** | **Medium** | **High** | **Very high** |
| Limited interpretation of solution requirements and designs to develop working modules.  **1 – 5 Marks** | Some interpretation of solution requirements and designs to develop working modules.  **5 -10 Marks** | Sound interpretation of solution requirements and designs to develop working modules.  **10 - 14 Marks** | Most solution requirements and designs are interpreted accurately to developing working modules.  **15 - 17 Marks** | All solution requirements and designs are interpreted accurately to developing working modules.  **18 - 20 Marks** |

**Data Types and Data Structure Choices.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited selection and use of data types and data structures.  **1 – 3 Marks** | Some selection and use of appropriate data types and data structures.  **4 – 6 Marks** | Sound selection and use of data types and data structures to develop working modules.  **7 – 10 Marks** | Detailed selection of relevant data types and data structures to develop working modules.  **11 – 13 marks** | Comprehensive selection of relevant data types and data structures to develop working modules.  **14 - 15 Marks** |

**Processing Features: Functions, Selection and Interaction Control Structures, Arrays, Sorting and Searching**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited selection and use of processing features of the programming language to develop some working modules.  **1 – 5 Marks** | Some selection and use of appropriate processing features of the programming language to develop some working modules.  **5 -10 Marks** | Sound selection and use of appropriate processing features of the programming language to develop some working modules.  **10 - 14 Marks** | Most processing features of the programming language have been selected and used to develop all working modules.  **15 - 17 Marks** | Comprehensive selection and use of relevant processing features of the programming language to develop all working modules.  **18 – 20 Marks** |

**Report on Programming Decisions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited explanation of how the selected processing features are used to develop working modules.  **1 – 2 Marks** | Some justification and explanation of how the selected processing features are used to develop working modules.  **3 – 4 Marks** | Sound justification and explanation of how the selection of appropriate processing features are used to develop working modules.  **5 – 6 Marks** | Detailed justification and explanation of how the selection of appropriate processing features of the programming language are used to develop working modules.  **7-8 Marks** | Comprehensive justification and explanation of how the selection of appropriate processing features of the programming language are used to develop working modules.  **9-10 Marks** |

**Validation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited data validation techniques are applied to check the reasonableness of some input data.  **1 – 3 Marks** | Some data validation techniques are effectively applied to check the reasonableness of some input data.  **4 - 6 Marks** | Sound use of data validation techniques are effectively applied to check the reasonableness of input data.  **7 - 10 Marks** | Detailed use of relevant data validation techniques are applied to efficiently and effectively check the reasonableness of all input data.  **11 – 13 Marks** | Comprehensive use of relevant data validation techniques are applied efficiently and effectively to check the reasonableness of all input data.  **14 – 15 Marks** |

**Report on Testing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited range of test data is expressed in a testing table, with incomplete or missing results.  **1 – 2 Marks** | Some testing of test data is expressed in a testing table with actual output stated.  **3 – 4 Marks** | Sound range of testing of test data is expressed in a testing table, with both expected and actual output stated and some evidence of debugging.  **5 – 6 Marks** | Detailed use of test data is expressed in a testing table, with both expected and actual output stated with evidence of debugging.  **7-8 Marks** | Comprehensive use of test data is expressed in a testing table, with both expected and actual output stated, and showing detailed evidence of debugging.  **9-10 Marks** |

**Internal Documentation and Naming Conventions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited internal documentation with few comments regarding the use of the selected processing features.  **1 – 2 Marks** | Some internal documentation with comments regarding the functioning of modules and the use selected processing features.  **3 – 4 Marks** | Sound use of internal documentation with comments regarding the functioning of modules and the use of selected processing features.  **5 – 6 Marks** | Most software modules include detailed internal documentation regarding the functioning of modules and use of selected processing features.  **7-8 Marks** | All software modules include comprehensive internal documentation regarding the functioning of modules and use of selected processing features.  **9-10 Marks** |

**SAT**

The VCAA Assessment Criteria for the Software SAT became available quite late, so I have put together an outline to be used in conjunction with the

SAT U3O2 – U4O1 Assessment Criteria (VCAA): <https://www.vcaa.vic.edu.au/Documents/vce/computing/2020SoftwareDevelopmentSBA.pdf>

The SAT needs to be broken down into the following discrete assessment tasks. I have added the assessment criteria from VCAA with possible/suggested mark allocation.

1. **GANTT CHART & DEVELOPMENT MODEL**

* Prepares a Gantt chart using software that documents all stages and activities of the problem solving methodology for U3O2 and U4O1.
* Documents all the relevant tasks, sequencing, time allocations, milestones, dependencies and critical path.
* Documents the use of the selected development model approach.
* Documents the justification of the selected development model approach.

**U3O2 Criteria 1 & 2**: A Gantt Chart with an outline justifying the selected development model chosen.

Text Resources:

* Gantt Chart Pages: 34, 76-77, 137.
* Development Model Pages: 45-47.

**Gantt Chart Criteria**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prepares some of the stages and/or activities of the problem-solving methodology.  1 Mark | Prepares a plan that documents most stages and some activities of the problem-solving methodology.  2 Marks | Prepares a Gantt chart using software that documents all the stages and some of the activities of the problem-solving methodology for U3 O2 and U4 O1.  3 Marks | Prepares a Gantt chart using software that documents in detail all the stages and most of the activities of the problem-solving methodology for U3 O2 and U4 O1.  4Marks | Prepares a Gantt chart using software that comprehensively documents all the stages and activities of the problem-solving methodology for U3 O2 and U4 O1.  5 Marks |
| Identifies a limited number of tasks, sequencing and time allocations.  1 Mark | Identifies some tasks, sequencing and time allocations.  2 Marks | Documents a range of relevant tasks, sequencing, time allocations and milestones.  3 Marks | Documents in detail most of the relevant tasks, sequencing, time allocations, milestones, dependencies and the critical path for the project  4 Marks | Documents comprehensively all relevant tasks, sequencing, time allocations, milestones, dependencies and the critical path for the project.  5 Marks |

**Development Model Justification Criteria**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lists some features of the selected development model.  1 Mark  Identifies limited justification for the use of the selected development model approach.  1 Mark | Outlines some features of the selected development model.  2 Marks  Outlines some justification for the use of the selected development model approach.  2 marks | Documents a range of features of the selected development model.  3 Marks  Documents a sound justification for the use of the selected development model approach.  3 Marks | Documents in detail most of the features of the selected development model.  4 Marks  Documents a detailed justification for the use of the selected development model approach.  4 Marks | Documents comprehensively all the features of the selected development model.  5 Marks  Documents a comprehensive justification for the use of the selected development model approach.  5 Marks |

1. **SRS REPORT**

* Documents data for analysis using appropriate data collection methods.
* Uses all the appropriate features of the selected analytical tools.
* Depicts all the relationships between data, users and digital systems.
* Documents evidence of critical and creative thinking through the identification, clarification and critical analysis of the data collected.
* Documents the functional and non-functional requirements, constraints and scope as part of the SRS.
* Documents the technical environment and the intended audience of the solution as part of the SRS.
* Documents evidence of critical and creative thinking through the use of questions and strategies to critically analyse solution requirements.

**U3O2 Criteria 3 & 4:** SRS Report

Text Resources:

* SRS Outline on pages 138 – 139.
* Details pages: 35 – 39.

**Analysis Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Identifies limited data for analysis using one data collection method. | Outlines some relevant data for analysis using some data collection methods and techniques.  **1 Mark** | Documents a range of relevant data for analysis using appropriate data collection methods and techniques.  **1 – 2 Marks** | Documents in detail relevant data for analysis using a range of data collection methods and techniques.  **1 – 2 Marks** | Documents a complete set of data for analysis using a wide range of data collection methods and techniques.  **2 Marks** |
| Uses limited features of the selected analytical tools. | Uses some of the features of the selected analytical tools.  **1 Mark** | Uses a range of the features of the selected analytical tools.  **1 – 2 Marks** | Uses most of the features of the selected analytical tools.  **2 – 3 Marks** | Uses all the features of the selected analytical tools.  **3 Marks** |
| Depicts limited relationships between the data, users and digital systems in the analytical tools. | Depicts some of the relationships between the data, users and digital systems in the analytical tools.  **1 Mark** | Depicts a range of the relationships between the data, users and digital systems in the analytical tools.  **1 – 2 Marks** | Depicts most of the relationships between the data, users and digital systems in all analytical tools.  **2 – 3 Marks** | Depicts all the relationships between the data, users and digital systems in all analytical tools.  **3 marks** |
| Lists some of critical and creative thinking through the identification of the data collected.  **Total 2 Marks** | Outlines some evidence of critical and creative thinking through the identification and analysis of the data collected.  **1 Mark**  **Total 4 Marks** | Documents evidence of critical and creative thinking through the identification, clarification and analysis of the data collected.  **1 – 2 Marks**  **Total 6 Marks** | Documents detailed evidence of critical and creative thinking through the identification, clarification and critical analysis of the data collected.  **1 – 2 Marks**  **Total 8 Marks** | Documents comprehensively evidence of critical and creative thinking through the identification, clarification and critical analysis of the data collected to determine its reliability.  **2 Marks**  **Total 10 Marks** |

**Analysis of Problem**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lists some solution requirements. | Outlines some appropriate solution requirements and constraints.  **1 - 2 Marks** | Documents an appropriate range of solution requirements, constraints and scope.  **2 Marks** | Documents detailed solution requirements, constraints and scope.  **3 Marks** | Documents comprehensively all the functional and non- functional requirements, constraints and scope.  **4 Marks** |
| Lists some details of the technical environment of the solution. | Outlines some aspects of the technical environment and the intended audience of the solution.  **1 Marks** | Documents the technical environment and the intended audience of the solution.  **2 Marks** | Documents in detail the technical environment and the intended audience of the solution.  **3 Marks** | Documents comprehensively all the technical environment and intended audience of the solution.  **3 Marks** |
| Lists some evidence of critical and creative thinking through the use of questions to follow solution requirements.  **Total 2 Marks** | Outlines some evidence of critical and creative thinking through the use of questions to analyse solution requirements.  **1 Marks**  **Total 4 Marks** | Documents evidence of critical and creative thinking through the use of questions and strategies to analyse solution requirements.  **1-2 Marks**  **Total 6 Marks** | Documents detailed evidence of critical and creative thinking through the use of questions and strategies to critically analyse solution requirements.  **2 Marks**  **Total 8 Marks** | Documents comprehensively evidence of critical and creative thinking through the use of effective questions and strategies to critically analyse solution requirements.  **3 Marks**  **Total 10 Marks** |

1. **DESIGN FOLIO**

* Generates alternative design ideas.
* Develops evaluation criteria with reference to design ideas and software solution.
* Produces preferred designs for the software solution.
* Documents evidence of critical and creative thinking through design ideas, solution requirements and justification of preferred designs.

**U3O2: Criteria 5:** Design Folio

Text Resources:

* Design Folio outline on pages: 140 – 141.
* Details pages 40 – 45.

**Design Folio**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Generates two design ideas with limited differences in appearance or functionality. | Generates two design ideas with some modifications in appearance and functionality.  **1 Mark** | Generates two or three design ideas that represent sound alternatives to appearance and functionality.  **1 Mark** | Generates two or three design ideas that are feasible alternatives and clearly differ in appearance and functionality.  **1 - 2 Marks** | Generates two or three distinctive design ideas that are feasible and original representations of appearance and functionality.  **2 Marks** |
| Lists some criteria for evaluating design ideas and software solution. | Outlines some criteria to enable partial evaluation of design ideas and software solution.  **1 Mark** | Develops a range of criteria to evaluate design ideas and software solution.  **1 Mark** | Develops a detailed set of criteria to evaluate design ideas and software solution.  **1 - 2 Marks** | Develops a comprehensive set of criteria for evaluating alternative design ideas and the efficiency and effectiveness of the software solution.  **2 Marks** |
| Produces the preferred design using limited and incomplete methods with very limited reference to the evaluation criteria. | Produces and justifies the preferred design using some appropriate methods and limited reference to the evaluation criteria.  **1 Mark** | Produces and justifies the preferred design using a range of appropriate methods and design factors with some reference to the evaluation criteria.  **1 - 2 Marks** | Produces and justifies the preferred design in detail using appropriate methods and design factors with detailed reference to the evaluation criteria.  **2 Marks** | Produces and justifies the preferred design comprehensively using appropriate methods and design factors with reference to all evaluation criteria.  **3 Marks** |
| Lists some evidence of critical and creative thinking through the development of connections between ideas and solution requirements.  **2 Marks Only** | Outlines some evidence of critical and creative thinking through the development of connections between design ideas and solution requirements.  **1 Mark** | Documents evidence of critical and creative thinking through the development of connections between design ideas and solution requirements and the justification of the preferred designs.  **1 - 2 Marks** | Documents detailed evidence of critical and creative thinking through the connection of ideas, design ideas and solution requirements and the justification of the preferred designs.  **1 - 2 Marks** | Documents comprehensively evidence of critical and creative thinking through the connection of ideas, the generation of design ideas and solution requirements and the justification of preferred designs.  **2 Marks** |

1. **Programming Solution**

* Uses a range of appropriate processing features.
* Writes comprehensive internal documentation.
* Applies appropriate validation techniques.
* Documents evidence of critical and creative thinking through the modification of designs and evaluation criteria.
* Organises and manipulates appropriate data structures efficiently to manage data and files.
* Proposes and implements procedures to manage the security of data and files.
* Documents the use of testing techniques and test data.

**U4O1: Criteria 6 & 7:** Programming Solution

Text Resources:

* VB Tasks and ideas on pages: 107 – 125

**Programming**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Uses limited processing features to develop an incomplete software solution that meets few requirements. | Uses some processing features to develop an incomplete software solution that meets some requirements.  **1 Mark** | Uses a range of processing features to develop an incomplete software solution that meets most requirements.  **1 - 2 Marks** | Uses a wide range of suitable processing features to develop a software solution that meets most requirements.  **2 Marks** | Uses a comprehensive range of suitable processing features of the language to develop a complete software solution that meets all requirements.  **3 Marks** |
| Writes limited internal documentation. | Writes some internal documentation with formatting.  **1 Mark** | Writes internal documentation that includes relevant program comments and formatting.  **1 Mark** | Writes detailed internal documentation that includes detailed program comments and formatting.  **1 - 2 Marks** | Writes comprehensive internal documentation that includes comprehensive program comments and formatting.  **2 Marks** |
| Applies limited data validation techniques. | Applies some relevant data validation techniques.  **1 Mark** | Applies a range of relevant data validation techniques.  **1 Mark** | Applies a wide range of relevant data validation techniques to check the reasonableness of data.  **1 - 2 Marks** | Applies comprehensive data validation techniques to check the reasonableness and completeness of all input data.  **2 Marks** |
| Lists some evidence of critical and creative thinking through the  modification of designs.  **Only 2 Marks** | Outlines some evidence of critical and creative thinking through the modification and further development of designs.  **1 Mark** | Documents evidence of critical and creative thinking through the modification of designs, evaluation criteria and listing of some possible contingencies for solution development.  **1 - 2 Marks** | Documents detailed evidence of critical and creative thinking through the modification of designs, evaluation criteria and listing of most possible contingencies for solution development.  **1 - 2 Marks** | Documents comprehensively evidence of critical and creative thinking through the modification of designs, evaluation criteria and listing of all possible contingencies for solution development.  **2 Marks** |

**Data Handling**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Organises limited data through the use of data structures to manage data. | Organises and manipulates some data through the use of appropriate data structures to manage data and files.  **1 - 2 Marks** | Organises and manipulates a range of data through the use of appropriate data structures to manage data and files.  **2 Marks** | Organises and manipulates data efficiently and effectively through the use of appropriate data structures to manage data and files.  **3 Marks** | Organises and manipulates all data efficiently and effectively through the use of data structures to manage data and files.  **4 Marks** |
| Proposes limited procedures or techniques to secure data and files. | Proposes and implements some procedures and techniques to manage and secure data and files.  **1 Mark** | Proposes and implements a range of procedures and techniques to manage and secure data and files.  **2 Marks** | Proposes and implements a wide range of procedures and techniques to manage and secure data and files.  **2 - 3 Marks** | Proposes and implements comprehensive procedures and techniques to manage the security of all data and files.  **3 Marks** |
| Lists some suitable testing techniques and test data.  **Only 2 Marks** | Outlines some suitable testing techniques and test data.  **1 Mark** | Documents a range of suitable testing techniques and test data to detect logic errors.  **2 Marks** | Documents a wide range of suitable testing techniques and test data to detect most logic errors.  **2 - 3 Marks** | Documents a comprehensive range of suitable testing techniques and test data to detect all logic errors.  **3 Marks** |

**5. Usability Testing and Solution Evaluation**

* Preparation and conduction of usability tests.
* Documents the results of the usability tests.
* Documents the modifications to the software solution.
* Proposes strategies for evaluating the efficiency and effectiveness of the software solution.
* Documents the evaluation of the efficiency and effectiveness of the software solution in meeting requirements.
* Documents the evaluation of how the development model assisted in the development of the software solution.
* Documents evidence of critical and creative thinking through the evaluation of the analysis, design and development stages and improvements to the solution

**U4O1: Criteria 8 & 9:** Usability Testing & Solution Evaluation

Text Resources:

* Report Outline page 142.
* Details pages: 68-79

**Usability Testing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prepares a limited usability test that covers few targeted requirements of the solution. | Prepares and conducts a usability test that covers some targeted requirements of the solution.  **2 Marks** | Prepares and conducts a usability test that covers many of the targeted requirements of the solution.  **2- 3 Marks** | Prepares and conducts a detailed usability test that covers most targeted requirements of the solution.  **3 Marks** | Prepares and conducts a comprehensive usability test that covers all targeted requirements of the solution.  **4 Marks** |
| Lists some results of the usability tests. | Outlines some of the results of the usability tests.  **1 – 2 Marks** | Documents a range of the results of the usability tests.  **2- 3 Marks** | Documents detailed results of the usability tests.  **3 Marks** | Documents a comprehensive set of the results of the usability tests.  **4 Marks** |
| Lists some modifications to be implemented to the software solution.  **2 Marks only** | Outlines some of the modifications to be implemented to the software solution.  **1 Mark** | Documents a range of the modifications to be implemented to the software solution.  **1 – 2 Mark** | Documents detailed modifications to be implemented to the software solution.  **1 – 2 Marks** | Documents a comprehensive set of the modifications to be implemented to the software solution.  **2 Marks** |

**Solution Evaluation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Identifies limited strategies for evaluating the software solution. | Outlines some feasible strategies for evaluating the software solution  **1 Mark** | Proposes some feasible strategies for evaluating the efficiency and effectiveness of the software solution.  **1- 2 Marks** | Proposes detailed strategies for evaluating the efficiency and effectiveness of the software solution.  **2 Marks** | Proposes comprehensive strategies for evaluating the efficiency and effectiveness of the software solution.  **3 Marks** |
| Describes how some features of the software solution meet requirements. | Outlines an evaluation of how some of the features of the software solution meet functional requirements.  Limited references to the evaluation criteria.  **1 Mark** | Documents a sound evaluation in terms of efficiency and effectiveness of how the specific features of the software solution meet functional and non- functional requirements. References some of the evaluation criteria.  **1- 2 Marks** | Documents a detailed evaluation in terms of efficiency and effectiveness of how most of the specific features of the software solution meet functional and non- functional requirements. References most of the evaluation criteria.  **2 Marks** | Documents a comprehensive evaluation in terms of efficiency and effectiveness of how all specific features of the software solution meet all functional and non- functional requirements. References all the evaluation criteria.  **3 Marks** |
| Describes how the selected development model assisted in the development of the software solution. | Outlines an evaluation of how the selected development model assisted in the development of the software solution.  **1 Mark** | Documents a sound explanation of effectiveness of how the selected development model assisted in the development of the software solution.  **1- 2 Marks** | Documents a detailed evaluation of effectiveness of how the selected development model assisted in the development of the software solution.  **2 Marks** | Documents a comprehensive evaluation of effectiveness of how the selected development model assisted in the development of the software solution.  **3 Marks** |
| Lists some evidence of critical and creative thinking through the identification of some improvements to the software solution.  **2 Marks only** | Outlines some evidence of critical and creative thinking through some evaluation of the development stage and the identification of some improvements to the software solution.  **1 Mark** | Documents evidence of critical and creative thinking through the evaluation of the design and development stage and the identification of improvements to the software solution.  **1 Mark** | Documents detailed evidence of critical and creative thinking through the evaluation of the analysis, design and development stage and the identification of improvements to the software solution.  **1- 2 Marks** | Documents comprehensively evidence of critical and creative thinking through the evaluation of the analysis, design and development stage and the identification and description of improvements to the software solution.  **2 Marks** |

1. **Project Evaluation**

* Documents the modifications made to the initial project plan.
* Assesses the effectiveness of the project plan.

**U401: Criteria 10:** Project Evaluation

Text Resources:

* Details pages 76 - 77

**Project Evaluation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lists some adjustments to the initial project plan.  **1 Mark** | Outlines some adjustments to the initial project plan during the project.  **2 Marks** | Documents a range of modifications to the initial project plan during the project using some appropriate techniques.  **3 Marks** | Documents in detail adjustments to the initial project plan during the project using appropriate techniques.  **4 Marks** | Comprehensive documentation of all adjustments to the initial project plan during the project using a range of appropriate techniques.  **5 Marks** |
| Lists limited factors that contributed to the effectiveness of the project plan.  **1 Mark** | Outlines some factors that contributed to the effectiveness of the project plan.  **2 Marks** | Documents a range of the factors that contributed to the effectiveness of the project plan.  **3 Marks** | Documents in detail the factors that contributed to the effectiveness of the project plan.  **4 Marks** | Comprehensive documentation of all the factors that contributed to the effectiveness of the project plan.  **5 Marks** |

**Unit 4 Outcome 2 Cybersecurity Report SAC**

SAC U4O2 Assessment Support (VCAA): <https://www.vcaa.vic.edu.au/Documents/vce/adviceforteachers/computing/2020SoftwareDevelopmentPerformanceDescriptorsU4O2.docx>

Text Resources:

* Pages 143-144

**Analysis of Current Security Practices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Very low** | **Low** | **Medium** | **High** | **Very high** |
| Limited discussion of the current security controls used to protect software development practices and to protect software and data.  **1 - 4 Marks** | Some analysis and discussion of the current security controls used to protect software development practices and to protect software and data.  **5 - 9 Marks** | Sound analysis and discussion of the current security controls used to protect software development practices and to protect software and data.  **10 - 14 Marks** | Detailed analysis and discussion on the current security controls used to protect software development practices and to protect software and data.  **15 - 17 Marks** | Comprehensive analysis and discussion of the current security controls used to protect software development practices and to protect software and data.  **18 - 20 Marks** |

**Identification of Risks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited identification or discussion of the potential risks to software and data security.  **1 - 4 Marks** | Some identification and discussion of the potential risks to software and data security.  **5 - 9 Marks** | Sound identification and discussion of the potential risks to software and data security.  **10 - 14 Marks** | Detailed identification and discussion of the potential risks to software and data security.  **15 - 17 Marks** | Comprehensive identification and discussion of the potential risks to software and data security.  **18 - 20 Marks** |

**Evaluation Criteria to Measure Security**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited relevant evaluation criteria to measure the effectiveness of the current security practices are proposed.  **1 - 4 Marks** | Some relevant evaluation criteria to measure the effectiveness of the current security practices are proposed.  **5 - 9 Marks** | Sound range of relevant evaluation criteria to measure the effectiveness of the current security practices are proposed and applied.  **10 - 14 Marks** | Detailed set of relevant evaluation criteria to measure the effectiveness of the current security practices are proposed and applied.  **15 - 17 Marks** | Comprehensive set of relevant evaluation criteria to measure the effectiveness of the current security practices are proposed and applied.  **18 - 20 Marks** |

**Legal and Ethical Consequences**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Limited identification of the possible legal or ethical consequences of ineffective security practices.  **1 - 4 Marks** | Some understanding of the possible legal or and ethical consequences of ineffective security practices.  **5 - 9 Marks** | Sound understanding of the possible legal and ethical consequences of ineffective security practices.  **10 - 14 Marks** | Detailed understanding of the possible legal and ethical consequences of ineffective security practices.  **15 - 17 Marks** | Comprehensive understanding of the possible legal and ethical consequences of ineffective security practices.  **18 - 20 Marks** |

**Recommendations and Risk Management Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Few recommendations are made to improve the current security practices as part of a risk management plan.  **1 - 4 Marks** | Some recommendations are made and justified to improve the current security practices as part of a risk management plan.  **5 - 9 Marks** | Sound recommendations are made and justified to improve the current security practices as part of an effective risk management plan.  **10 - 14 Marks** | Detailed recommendations are made and justified to improve the current security practices as part of an effective risk management plan.  **15 - 17 Marks** | Comprehensive recommendations are made and justified to improve the current security practices as part of an effective risk management plan.  **18 - 20 Marks** |