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| Student Name | Kyle Kent | | Student Number | |  |
| Unit Code/s & Name/s | ICTPRG501 Apply advanced object-oriented language skills | | | | |
| Assessment Name | Class Test | | Assessment Task No. | | AT2 |
| Date of test/exam | 23/11/2018 | | | | |
| **Student Declaration:**  I declare that this assessment is my own work. I am aware of and understand the rules related to assessment as outlined in TAFE Queensland Student Rules and acknowledge that failure to comply with these rules will be regarded as misconduct and will be subject to disciplinary action as outlined. | | | | | |
| Student Signature |  | | | Date |  |
| Assessor Feedback:  Student provided with feedback *(check box when completed)* | | | | | |
| Attempt 1 | Satisfactory | Unsatisfactory | | Date | / / |
| Attempt 2 | Satisfactory | Unsatisfactory | | Date | / / |
| Assessor Name |  | Assessor Signature | |  | |
| Note to assessor: Please record any reasonable adjustment below that has occurred during this assessment. E.g. written assessment given orally; scribe provided. | | | | | |
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| **PRIVACY DISCLAIMER:** TAFE Queensland is collecting your personal information for assessment purposes. The information will only be accessed by authorised employees of TAFE Queensland. Some of this information may be given to the Australian Skills Quality Authority (ASQA) or its successor and/or TAFE Queensland for audit and/or reporting purposes. Your information will not be given to any other person or agency unless you have given us written permission or we are required by law. | | | | | |

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| Assessment rules | Only students enrolled in the unit of competency, the Assessor / Supervisor, and other authorised personnel may enter or remain in the room during a written test / exam. The Assessor/ Supervisor may ask you to produce photographic identification (e.g. student ID card, driver’s licence).  Unless approved by the Assessor / Supervisor prior to the written test / exam (e.g. for open-book exams) you may not bring any devices capable of conveying information relevant to the content (e.g. text books, course notes, mobile phones, pagers, notebook computers, and other devices). You must ensure mobile phones and other electronic devices are turned off prior to the commencement of the written test / exam.  You are required to comply with all directions:   1. Detailed in assessment material supplied; 2. Set out on any notice displayed in the room; and 3. Given by the supervisor.   During a written test / exam session you may not:   1. Communicate with any person other than the supervisor; 2. Assist another person to communicate with another person; and 3. Willingly receive communication from any person except with the approval of the supervisor.   Unless permitted by the supervisor, you may not take from the room any papers or other materials provided for use during the written test / exam.  You are expected to be considerate of other students when entering or leaving the room or when in the vicinity of the room.  If you consider that your performance in the written test / exam has been adversely affected by illness, disability, bereavement or other exceptional circumstances you may apply for special consideration. **For more information, refer to the Student Rules.** |
| Instructions to Student | **Number of Questions:** 5  **Time Allowed:** 4 hours  **Examination Conditions:**  This is a closed book examination; All questions must be attempted. |

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|  | **Materials to be supplied:**  Examination paper  **Materials to be supplied by the Student:**  Paper for recording answers  **General Instructions:**  You are required to answer each of the questions provided. You must use a black or blue pen to provide answers, not pencil. Sketches, however, may be in pencil.  **Calculators:**  Calculators may be used during this examination. Before the examination commences, all memories must be fully cleared and programs erased.  **Number of Attempts:**  You will receive up to two (2) attempts at this assessment task. Should your 1st attempt be unsatisfactory (U), your teacher will provide feedback and discuss the relevant questions with you and will arrange a date your 2nd attempt. If your 2nd attempt is unsatisfactory (U), or you fail to attend the scheduled date for a 2nd attempt, you will receive an overall unsatisfactory result for this assessment task. Only one re-assessment attempt may be granted for each assessment task, with the exception of Apprentices or Trainees who are permitted an additional supplementary assessment. **For more information, refer to the Student Rules.** |
| Instructions for the Assessor | This is a closed book examination.Remind students of TAFE Queensland Student Rules assessment requirements. |
| Submission details  (if relevant) | Students are to submit written answers to the teacher at the end of the exam. |
| Note to Student | An overview of all Assessment Tasks relevant to this unit is located in the Unit Study Guide. |

Answer the following in paragraph or dot-point format in roughly 100 words per question:

1. Describe the required technologies for developing web applications.

The front-end is typically written in HTML, which will display all the content for the user. Depending on the application, it can also require Cascading Style Sheets, separating the visual code from the content code and JavaScript, increasing user interactivity. Back-end can be written in many different languages, from PHP and Java, to C# and Python. Back-end does everything the user does not see, quietly rendering the front-end and processing user action. Some applications also require a database to store information. This can be programs like SQL or Oracle.

1. Explain the different approaches to implementing inter-process communication in either Java or C#.Net.

Network sockets allow you to share data over a wired network connection with other hosts. Clipboard uses the OS copy and paste commands to transfer data between applications on a single machine. RPC is a remote communication between two applications which is executed by the user. File mapping stores the data in the hosts memory, allowing it to be shared simultaneously across applications.

1. What project management and development strategies would you utilise to develop a large-scale application?

Software design patterns would need to be used. These patterns provide solutions to general problems and help produce a large-scale application quicker. A large-scale application would guarantee the necessity of version control software. Making it a must to ensure steady progress. It would make a Waterfall methodology difficult to implement due to the size of the project. If even one thing was wrong while using a Waterfall methodology could ruin the entire project. Meaning an Agile methodology would be preferable for that needed agility. Software management tools that would be useful here would be MS Visio for diagrams of the database, and MS Office products for setting the budget, costs and timeframe.

1. Explain the different testing techniques that you can use in distributed application development.

The testing techniques are:

* Unit testing is testing done on all independent sections of code. Code that does not require other sections of code to operate can be unit tested.
* Functional testing tests and function of an application. The test checks for any errors that may appear from a user’s point-of-view.
* Quality of service testing in programming refers to the applications prioritization of resources, confirming that the application is running at highest level of performance.
* Performance testing checks the stability of an application. Ensuring it runs at an optimal speed.
* Click-stream testing is a test that records what users have done. From the URLs they have opened, to time spent on the application. It gives insight into what the applications users are doing.

1. Describe in detail the steps in implementing a third-party supplied library for performing common programming tasks.

Third-party libraries must be installed in your chosen development environment. A third-party library that performs common programming tasks is MySQL Jar connector. The IDE’s directory will have a folder, storing all default and third-party libraries, here you can add the MySQL Jar library to the system. After that, you must manually add the library to every new project, or set the library as a default library for new projects. Then, when using the library, you must import the package member you need to access certain actions, such as connecting to a SQL database.