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| Student Name | Kyle Kent | | Student Number | |  |
| Unit Code/s & Name/s | ICTPRG503 Debug and monitor applications | | | | |
| Assessment Name | Class Test | | Assessment Task No. | | AT2 |
| Date of test/exam | 09/11/2018 | | | | |
| **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.** |

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| Instructions to Student | **Number of Questions:** 7  **Time Allowed:** 4 hours  **Examination Conditions:**  This is a closed book examination; All questions must be attempted.  **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. Name at least two (2) examples of the following: *(Note: word limit does not apply)*
   1. Logging frameworks

* Java Logback
* Log4net
  1. Debugging tools
* Junit
* JDB
  1. Profiling tools
* Netbeans Profiler
* JProfiler

1. Give reasons on why you would use the following tools when developing an application:
   1. Profiling Tools

Profiling is extremely important to application optimization. Profiling analyses time of function calls and their frequency, helping you determine if an application is operating a its peak.

* 1. Logging and tracing tools

Logging and tracing allows you to easily find any errors within an application. Logging logs errors and tracing directs you to the line of code that is causing problems. This makes it incredibly useful for debugging.

1. Applications depend on a number of layers and/or facilities to be in place on a network or computer system in order to run. With reference to this, describe how each of the following might underpin an application’s ability to run:
   1. a network

A network connects devices together over a WI-FI or LAN network. Some applications such as a weather application, might need an internet connection to operate.

* 1. IT hardware

Hardware is what allows your application to run. Applications may need servers, hard drive space or processing power from a computers CPU.

* 1. operating system(s)

Operating Systems are another basis for applications. Applications require specific OS to run, without the right OS the application will fail to run.

* 1. database management systems

Database management systems streamline the operation of databases making it less complicated to update or edit a database.

1. Java and C# are among the more popular **object-oriented programming** languages used today. What makes them different from other non-object-oriented programming language?

One of the main reasons Java so popular is its diverse compatibility. Java can run on any OS, so long as the system has a Java environment on it. What makes them different from non-object-oriented languages is that they are object orientated. OOP revolves around objects, everything is carried out by using objects whereas non-object-oriented programming uses procedures. But another thing that makes them so different is their concepts OOP has concepts like inheritance, encapsulation, abstraction and polymorphism which procedural programming cannot do.

1. Using an example, discuss the merits (advantages) of open-source development tools.

Open source is very popular. One of these reasons is because its free, but it’s more than that. A result of being free, means it has a large following. As it is crowd sourced, there are many modifications and improvements created by users and shared to everyone. Allowing users to use other custom made libraries and frameworks, cutting down on work considerably.

1. Describe in detail how small and medium-size application development projects might differ in terms of their respective development processes, required tools and techniques.
2. There can be many differences between the two. A small application may have a faster development due to the difference in size. Where it might take 4 weeks to analyse the requirements to a medium sized application, it could take only 2 for a small project. Since a small project typically has a smaller team, they may no longer have a need for Servers. As the project is smaller in scope, it may be easier to follow and since there are so few working on it, they might feel it is unnecessary. A team working on a small project might even decide that version control is unnecessary, due to both the small size of the team and project itself. Whereas a team working on a medium-sized application would need version control, to compile the project and share it around team member coherently. With a small project, depending on the project itself might be either a Waterfall or Agile methodology. A small project could use a Waterfall methodology, since there is little room for mistake. But a medium-sized product will never be Waterfall. Since the margin for error has increased along with the size of the project, error is more likely, making recovery from such errors much more important. Both would use project management tools such as MS Visio, and MS Project.
3. Under what circumstances might you use a **Waterfall** Software Development Life Cycle? Describe the standard phases within a Waterfall SDLC.

A waterfall life cycle would be used in conjunction with a waterfall methodology. It is t used when the instructions for a project are clear and avoided when they are not. The waterfall life cycle is rather meticulous, having many documents on the projects planning. This makes it useful for when records need to be kept or viewed. The typical phases of a waterfall life cycle are analysis, design, implementation, testing and launch.

**End of assessment**