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| Student Name | Kyle Kent | | Student Number | | 465510139 |
| Unit Code/s & Name/s | ICTPRG604 Create cloud computing services | | | | |
| Assessment Name | Test | | Assessment Task No. | | AT2 |
| Date of test/exam | 19/11/2018 | | | | |
| **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 | K Kent | | | Date | 19/11/2018 |
| 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 questions in paragraph or dot-point format in approximately 100 words per question:

a) Which of the following are the most appropriate development tools for creating web services that can be deployed on the cloud and describe each tool?

UML Modelling Tools

UML Modelling tools are tools that streamline the process of creating UML models. They do this by giving the user access to certain tools, such as diagram templates and modelling objects. This allows users to visually represent their web services, in the form of UML diagrams like Use Case and Class diagrams. UML Modelling tools do not create web services, they simply help developers to visualize what the web service should look like

WSDL Generators

WSDL stands for Web Service Definition Language. It is an interface language used between the client and web service to determine what types of functions are available to the client. WSDL generators are tools used to quickly and efficiently generate WSDL.

Microsoft Visio

Microsoft Visio is an application designed by Microsoft to aid developers in designing diagrams. Just like UML modelling tools, this is done by allowing the developer to use stencils shapes and objects to design their diagram.

Netbeans

Netbeans is a programming IDE typically used for the Java or PHPP language. Like most IDE’s, Netbeans includes support for applications that access web services. But does not allow you to create web services.

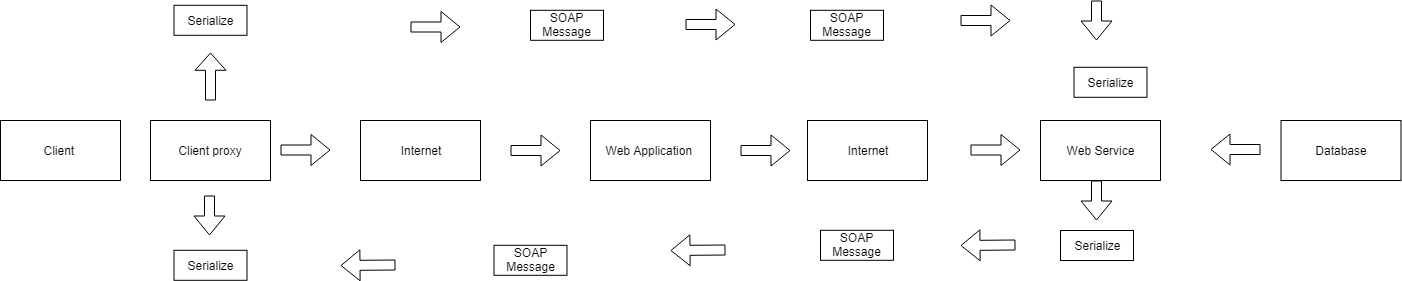
b) Suggest two other such development tools and indicate how they are applicable.

Microsoft Visual Studio is another programming IDE. Instead of PHP or Java, Visual Studio deals with Microsoft languages such as, C#, C++, .Net and more. Unlike Netbeans, Visual Studio does support the creation of web services on its IDE.

A Web Service Tester will be needed to test UDDI registries by invoking web service calls and receiving results.

1. Draw a diagram clearly illustrating how a client connects to a cloud-based application, which in turn connects to a web service. Clearly note and describe the hardware and software (infrastructure)

required for each section or aspect of this.



Client requires access to a computer or handheld device with internet functionality. Web application can be accessed by any client but to be created, requires an IDE with web service functionality. Web service is the same as web application in terms of requirements but has a database connected to it.

1. List and explain what would need to be considered in applying object-oriented programming to a cloud-based solution.

* Scalability
  + When transferring OOP to cloud systems, bottlenecks can have a considerable increased impact on performance and must be fixed.
* Security
  + As the application accesses web services, extra security consideration must take place. Authentication and user permission must now be considered. Data security must also be considered to help protect private information.
* Infrastructure
  + Cloud environments may be affected by system behaviour such as connection drop outs or database queries.
* Costs
  + Cloud computing will affect your local bandwidth and systems resources.
* Data Consistency
  + Application must be able to send and retrieve data correctly while receiving multiple requests. Consistency can also be applied to this by taking only fields that are required eg. Only taking from field txtName and txtID when you may also take from txtDescription.
* Business Logic Layer
  + The business focus must be persistence and processing. With multiple user requests always running, systems must have the built-in code and processing power to handle this, ensuring that the user experience is persistent across the board.

1. Describe (potentially with one or more supporting diagram(s)) how to access and manipulate the database content on the web using HTML and XML.

HTML is the front end of the of the web application. Any data input by a user must be taken from the front end to be stored in the database using XML. Tags within the XML file can be used to insert and take from the database, to be stored in the database or viewed on the client’s application.

1. Define the term “big data” in relation to cloud computing.

“Big data” refers to large and complex data sets that are so large that many of the standard frameworks designed to process data fail to process the data or do so extremely slowly. To counter this, paradigms and frameworks designed to efficiently process “big data” have been developed. Allowing developers to process large amounts of data at an optimal pace in cloud computing. Without these frameworks manipulating “big data” can be incredibly difficult or outright impossible depending on the size of the “big data”.

**End of assessment**