ECS427U Professional and Research Practice: Assignment 3

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**ECS404 Procedural Programming:**

**Autumn 2019 MID TERM TEST A PART 1 OF 2: Question 1b)**

***Why I chose this piece of writing?***

After completing the test and comparing my answers to the module’s workbook explanations, I immediately realised that I made a few mistakes which could have cost me a few marks. When I received my marked paper back, I completely agreed that I deserved only half of the possible marks available for the Question 1 part b (*Compare and Contrast)*.

I choose to rewrite this answer hoping to improve the clarity and structure of my answers in order to improve the presentation of concepts and ideas in a concise way. My answer was not complete and it lacked knowledge regarding if-statements (how are the branches executed). I do believe that re-writing my own work will prevent me from making the same mistakes in the future. Furthermore, it is helpful to refresh your current knowledge about the topic or to add new information to it.

*“Compare and contrast the following parts of an* ***if-then-else*** *statement:*

*i) the test*

*ii) the branches “*

***ORIGINAL ANSWER***

Both the test and the branches are expressions written in a language that can be understood by the computer (machine code), both will be evaluated to give an answer. The test is the first operation evaluated in the brackets and if it turns out to be true, ( it is, after all, a Boolean expression) then the first set of instructions is executed. However, the branches will be executed only if the test turned out to be false, as in the example below:

int a ;

if ( a> 5 )

{

System.out.println (“You are right.”);

} else

{

System.out.println (“I told you so”);

}

If the variable *a* holds a the value greater than 5, then the system prints out the message “You are right” (this is the test), otherwise it prints out the message ”I told you so” (The command inside the branches).

***REVISED ANSWER***

Both the test and branches are pieces of code written in a language that can be understood by a computer (machine code) that are being executed as part of an if-statement. The branches are statements whereas the test is an expression. The test is the first operation evaluated in the brackets. In the case that it turns out to be true, (it is, after all, a boolean expression) then the first set of instructions (first set of branches) is executed.

One obvious difference is that the test (condition) is always executed when the if-statement is, as opposed to the branches which can’t be both executed at the same time. Unlike the test, they do not evaluate to a value but to do a job: assigning values to variables, printing messages amongst many other roles. On the other hand, the test is an expression as it evaluates to a result (a boolean value: true or false). It has one job: to determine which branch is to be executed depending on the boolean value and return the result that indicates which.

In the example above:

int a ;

if ( a> 5 )

{

System.out.println (“You are right.”);

} else

{

System.out.println (“I told you so”);

}

a>5 is the condition (test), thus it is an expression. The branches are both assignments executed depending on the result (in this case, if the test evaluates to true, then the message “You are right” is printed on the screen, “I told you so” otherwise.

***IMPROVEMENTS MADE***

When rewriting my answer, I took into account the information in the programming booklets provided in this module. By doing that, I decided that my writing should keep the same structure as in the original answer but the content will slightly differ.

I am aware that my answer is too short and holds a vague explanation of the two concepts, mixing and misunderstanding information. Thus, my revised answer is longer and organised, carefully comparing each aspect: the first paragraph is mainly focusing on the common traits and what each of them represents in an if-statement.

I completely changed the green highlighted sentence because it contains errors regarding branches (branches are not expressions). I rephrased the second part of the first sentence and introduced it as a common characteristic of the two concepts.

My original answer did not explain the differences between the common aspects of the two concepts clearly, thus I wrote in more detail about the test so that I could compare it to branches after that: *“The branches are statements whereas the test is an expression. The test is the first operation evaluated in the brackets. In the case that it turns out to be true, (it is, after all, a boolean expression) then the first set of instructions (first set of branches) is executed.“*

The second paragraph is structured as a contrast between each concept’s job, strongly sustained by a simple example. I used the same example as in my original answer. After highlighting the most important differences, I emphasised on the fact that the condition is an expression and branches are statements doing different jobs. My original piece of writing did not include information about what they actually do in an if-statement, thus I insisted on adding this part in order to make use of my chosen example (code).

The last paragraph of my writing was incomplete, thus I rephrased it and added additional information regarding branches: how to execute branches with examples from the code above.

My reworked version is a much more structured answer as the writing is more concise and it can be read fluidly. The content is more substantial than in my original work. I believe the improvements are the result of well-known content, of a serious approach of the subject requiring more time and more confidence in how the answer is formed. It is obvious that my original answer was constructed in a rush, my reworked version however consists of more thoughtful explanations to properly answer the questions.

***How can this change your writing work in the future?***

Rewriting this question helped me practise my writing skills using the knowledge I previously had from high school combined with the helpful guidance from both the lecturer and demonstrators. Thus, this assignment helped me realise that rushed answer without a proper scheme in mind will cause me inconveniences in future while working for a company as the employer won’t give me second chances to improve my report. I strongly believe that perfection is the result of a lot of practise, thus writing this piece of work is just one of the many opportunities to learn and practice my writing skills while coping with time pressure. As my aspiration in life is to become a researcher after graduation, this will definitely help me write better academic papers such as a dissertation paper.

***ECS427: Professional and Research Practice (2019):***

*Assignment 1, part a)*

*” Identify a specific opportunity for the application of the selected technology and explain why it is important. “*

***Why I chose this piece of writing?***

This piece of writing represented a challenge for me as I have never written an academic paper before and I needed help with learning how to think critically. After attending lectures and receiving guidance from demonstrators, I was able to write my first draft.

I submitted my work feeling confident about my writing. Once I got back the essay alongside a personalised feedback I realised that I missed out on some marks. I carefully went through each part while keeping in mind the advice given by the marker and everything was starting to add up. The first part of the essay was mostly focused on what a smart city is and what is meant by implementing it in our daily life. As a result, important details about Artificial Intelligence were left out and the content was unclear to readers.

By rushing to write down as many ideas as I could I realised that I was not following a well-structured scheme, therefore the shape of the text was a chaotic mixture between well researched content (using technical language) and simple explanations of concepts (using ordinary language). On top of that, I originally misinterpreted the question and the essay turned out to be focusing on different problems.

Thus, I chose to rewrite this essay hoping that I will improve my writing skills, also to learn how to avoid similar mistakes while writing future academic essays.

***ORIGINAL ANSWER:***

“Smart cities provide an innovative way to handle urbanisation, with lower impact on the environment and people’s lifestyles. They offer more efficient versions of urban infrastructure, with routine processes being automated. This concept of a smart urban area became known as a solution to address existing challenges with the expanding growth of urbanization (Bhagya, 2018). However, a smart city cannot function properly without emerging Artificial Intelligence (AI) concepts and systems. Data collection is an essential part of Big Data which is being processed through AI. It has an enormous potential in the urban space, as it links modern life and technology, while guaranteeing efficiency at a smaller cost (Zaheerand Dhunny, 2019). Building a smart city represents a big challenge for scientists due to technical (design) and ethical issues. Two challenges of smart cities are smart water and automated parking, for example. An AI system can be used in parking space prediction and path optimization in self-driven cars (Amato et al., 2017). Smart water is used for developing effective treatment to reduce cost and green gas emission. One example is an efficient forecasting software developed using Artificial Neuronal Networks (ANN), helping a water utility in Whitby, Ontario to save up to $150,000 of electricity cost. “

***REVISED ANSWER***

“Smart cities provide an innovative way to handle urbanisation, with lower impact on the environment and people’s lifestyles. They offer more efficient versions of urban infrastructure, with routine processes being automated. This concept of a smart urban area became known as a solution to address existing challenges with the expanding growth of urbanization (Bhagya, 2018). However, a smart city cannot function properly without emerging Artificial Intelligence (AI) concepts and systems. AI is a development of computer systems that is able to analyse its environment and takes actions that maximize the chance of success. It extracts information from different sources and works with data sets that are too complex to deal with by traditional software. Data collection is an essential part of Big Data which is being processed through AI. It has an enormous potential in the urban space, as it links modern life and technology, while guaranteeing efficiency at a smaller cost (Zaheerand Dhunny, 2019). Building a smart city represents a big challenge for scientists due to technical (design) and ethical issues. Two challenges of smart cities are smart water and automated parking, for example. An AI system can be used in parking space prediction and path optimization in self-driven cars (Amato et al., 2017) or it can be used for developing effective treatment to reduce cost and green gas emission.”

***IMPROVEMENTS MADE***

The paragraph should contain more generic information about AI as a technology (ideally adding more details between the turquoise and pink highlighted sentences) before talking about its applications (Big Data) and challenges (smart parking and smart water systems). I decided to introduce to the piece of writing more details of what AI really is so that the transition between the two highlighted sentences would be more understandable.

Although, the pink sentence could be completely cut off and added to another section of the assignment as it briefly mentions the name of the concept of Big Data without any other clarifications regarding the connection between this technology and smart cities. Despite that, I chose to keep the sentence and properly link it to the text.

The sentence highlighted in yellow should rather be included the second part of the assignment as it is a relevant example of a perfectly functionable smart water system, not an example of a smart city concept. Thus, the revised answer does not include this part. By doing this, the text will respect the required word limit.

I felt the need to link the last two sentences (highlighted in green) because the second one is out of place without the yellow part.

The new version of the original work contains more simpler details of what is understood by intelligence of a computer, offering a greater understanding of AI to non-specialist readers with no knowledge in the field. The language I used is more concise and it makes the meanings behind difficult concepts easier to understand.

***How can this change your writing work in the future?***

I usually struggle with finding the right words to describe difficult concepts and I lose sight of the most important part: the ‘shape’ of the question. By learning English as a second language I do find it hard to connect sentences containing different topics. However, I find this exercise of rewriting my own essay useful as it develops my critical thinking skills. As mentioned before, my dream is to become a researcher in one of the many applications of AI, therefore this exercise helped me gather more knowledge about the subject and most importantly it helped me form a clear idea of how a research paper in this field should look like and what the academic standard is.

As a result, I came to the conclusion that the key to a well-written piece of work is providing your reader with a clear thesis, consistent supporting paragraphs and well-structured solutions in your final paragraph. If you plan your essay with these components in mind you will find writing much easier, training your ability to think critically.