

Self-mark:

I clearly, 'Described and justified the features that make the problem solvable by computational methods, explaining why it is amenable to a computational approach.' This was done at the latter end of my analysis section with in my course work. I explain why a human cannot simulate the movement of stocks in real time, for example, due to its speed, complexity and volatility. Furthermore, I explained why this game can only be effectively done via the use of computation methods:

"This is because my stocks will be moving in a 'random' way shown on a candlestick graph. This can't be done by a human as stocks move based off any recent news... Furthermore, stocks move usually every second, a human will not be able to extract all this data while also moving the stock prices up and down, only a computer can perform such multitasking."

Furthermore I 'Identified suitable stakeholders for the project and described them explaining how they will make use of the proposed solution and why it is appropriate to their needs.' I first was able to do this by clearly stating the age range of my target audience:

"My game will be targeted towards older teens and young adults with the age range of 17 - 20."

I then further narrowed it down to a specific group of 17 -18 year olds via the subjects they're currently studying.

. "This game will be aimed at students who admire the economy and specifically the stock market and how trading with precisely stocks."

. "Explicitly, I want these students to either be studying Alevel economics, math's, accounting or Alevels similar to working with numbers."

Furthermore I also narrowed it down for 18 – 20 year olds via what they did during alevel and what they are currently pursuing and if they have a passion for stocks:

. "Furthermore, if they are now adults and have completed their Alevels, they are studying something within the economics field and a university degree or doing an apprenticeship within the finance and or accounting field."

. "However, they also must have a passion with wanting to trade as possible a hobby or as their full time job once they're an adult or already an adult and have already learnt how to trade with stocks."

I then tackled the second part of the criteria in explain how they will make use of this solution with a multitude of different answers for example:

“I want my target audience to be using this game in their free time, and they must have people to play with, preferably 4 – 6 players.”

This answer was given due to me doing a questionnaire in which my target audience stated that this was the most popular amount for how many people I should cater this game to.

. “It will be an educational game that brings both entertainment and competitiveness for players trying to win, make the most profit.”

. “While also allowing the players to lean on the stock market without having to use real money while trading. It allows them to trade without the thought of possibly losing thousand of a real currency, instead learning with a virtual currency.”

These two points indicating its both a game that is used so they can learn about stocks, in which they already have a passion for it, while also not having to worry about losing money.

I finally explained why it is appropriate for their needs with 4 main points:

. “This game is, in my opinion, appropriate for the stakeholders I chose because it directly correlates to their already known, interest, skills and most important their future career aspirations.”

. “If this is through seeing the sheer amount of numbers, percentages and graphs, and being able to correctly identify winning stocks and losing stocks, principles within the stock market, like when you would see a candle stick graph go up or down and finally look at recent articles or data to see if buying a certain stock.”

. “To where they will finally feel comfortable enough to trade with real money on the stocks they traded with prior, with fake money.”

. “The competitive elements to this game is what makes it engaging for the audience I am targeting.”

Given by this sets of evidence, I believe this is also a top band answer to one of the sections (stakeholders).

However I felt like the part in which I had to look at existing solutions is lacking quite a lot and does not align with a top band answer:

Researched the problem in depth looking at existing solutions to similar problems, identifying and justifying suitable approaches based on this research.

I believe it aligns more with a 6 – 7 mark answer:

Researched the problem in depth looking at existing solutions to similar problems identifying and describing suitable approaches based on this research.

This is because while I did give evidence of existing solutions. I believe I only had 1 really solid description of one, while my other 2 were less descriptive and lacking in several different ways. These are through the lack of pictures of the other solutions. I did not really talk about it to a high extent. What I was describing may have possibly been useless and became quite repetitive. Finally I should of added possibly another existing solution to my game.

But for this part of the mark scheme for a top band:

Identified the essential features of the proposed computational solution explaining these choices.

I believe I have done and will present evidence to indicate why I came to this conclusion.

For the first part of that section of the mark scheme, I hgave a multitude of features of my proposed solution:

. “A section of my game will have a box including all stock market related news”

. “A part of my code that allows the data of each game to be saved by the specific players who played via a login system, so the next time these players login they are able to see their saved data.”

. “A menu screen that gives you the ability to decide how many players you will have in your round”

. “A previous history screen where it will tell you, if you have done a round before, your previous scores for your players, profits, players etc.”

. “The entire stock market, this allows each player to choose the stocks they would like to use”

. “A system that decides whether which player gets to pick their stock first, possible by using a coin flip system”

. “While each player is choosing their stock, they can choose stocks depending on their tiers to make the game more fair. So a player can only choose 1 A - D stock from each tier.”*

. “A candle stick graph, so as you play it will show you how the stocks, you have chosen, are doing to help you determine whether you need to buy or sell.”

. “I need my game to be turn based as everyone will be playing on one computer, I cannot have everyone playing at the same time.”

Then for the second part, I gave explanation and justification via these quotes from my analysis:

- “This is so each stock can be categorized into their tiers” (explains why you use volatility, liquidity, recent performance trends, stability).
- “When trading with stocks you will have a candle stick graph which will show the current state of the graph. This is ESSENTIAL, when trading with stocks as it is the key way for you to know what to do with your current stocks, without it, it will be nearly impossible to trade while making a profit.”
- “Not only is this essential, it is possibly the most important part of any game. When you have games, especially turn based, it often uses a lot of buttons, my game is no exception. You will have buttons that are used to buy or sell, click on the news info, play game button and many other interactable buttons.”
- “With most games, you may have information showing things like damage you have done on an enemy. For me I will show information targeted to my game. This will be needed so you can actually see how well you are currently doing and how long you are currently been playing for. This is an essential feature in this game and without it you will be in the blur on whether or not you are doing well.”
- “Similar to what you see in paper trading, I could have a single player mode where you trade on your own but still having all the other features of my game aspect. This is so you can get a more realistic way to play the game so its similar to how real trading will be like. Furthermore, it will allow people who don’t want to play with others and only want to play on their own.”

I finally gave computation methods supporting the features of my game:

. “In my opinion I believe this will be a computable problem. This is because my stocks will be moving in a ‘random’ way shown on a candle stick graph. This cant be done by a human as stocks move based off any recent news ... only a computer can perform such multitasking.”

? “There will be decomposition where all the stocks will then be broken down into their separate stocks, which will then be broken down into their tier (how good it is), which is

derived from the stocks volatility, recent news, price of stock etc. Also the players will be broken down into their specific portfolio of stocks and separate between one another so each player can play when it's their turn."

. "There will be abstraction, where the user will only be provided with their stock information ... when they read the news related information, they won't see the entire recent news, not even the entire economic related news, but mainly stock related news."

. "Another reason why the compatibility of my program is reinforced is through the multitasking the program will have to perform. The computer will need to show a candle stick graph running at 1 second intervals, that changes based of recent stock market news, that then allows the user to buy or sell with that stock, which I'll further show if the user is making a profit, if the stock is currently a red or green candlestick."

Again I showed a slightly more poor answer for one of the features of a top band answer which in my opinion brings that feature to a lower band one:

Identified and described the essential features of the proposed computational solution.

This is because while I may have done some justification, it was very poor and not worthy of being a 9 – 10 mark answer hence bringing this section of my analysis down.

However quotes to support that I identified essential features of my game are:

. "A section of my game will have a box including all stock market related news"

. "A menu screen that gives you the ability to decide how many players you will have in your round"

. "A previous history screen where it will tell you, if you have done a round before, your previous scores for your players, profits, players etc."

. "The entire stock market, this allows each player to choose the stocks they would like to use"

. "A system that decides whether which player gets to pick their stock first, possible by using a coin flip system"

. "While each player is choosing their stock, they can choose stocks depending on their tiers to make the game more fair. So a player can only choose 1 A - D stock from each tier."*

. "A candle stick graph, so as you play it will show you how the stocks, you have chosen, are doing to help you determine whether you need to buy or sell."

. “I need my game to be turn based as everyone will be playing on one computer, I cannot have everyone playing at the same time.”

These quotes from my analysis clearly fall in line with a 6 – 8 mark answer

Furthermore I then described these features with these certain quotes. While I did add some justification it was very poor and not noteworthy:

. “While each player is choosing their stock, they can choose stocks depending on their tiers to make the game more fair.”

. “This is so each stock can be categorized into their tiers” (explains sub-features like volatility, liquidity, stability)

. “Similar to what you see in paper trading, I could have a single player mode where you trade on your own but still having all the other features of my game aspect.”

Therefore I believe this section of my analysis falls within a 7 – 8 mark answer.

Again I believe for this part of the 6 – 8 mark markscheme I align with:

Specified the requirements for the solution including (as appropriate) any hardware and software requirements.

This is because while I again have justification, it is, in my opinion not enough to put me for a 9 – 10 mark answer. I did specify the software and hardware requirements, it was brief but I added some justification for these reasons to why I would expect someone to have them if they want to play my game:

Software requirements

- “I will share my game via github through an .exe file. They will then be able to install the .exe file and play my game.”
- “There are no specific software requirements to play my game, other than having a graphical interface.”
- “While python is able to be run on a mobile phone I don’t plan on integrating a UI specific for mobile phone. So you will not be able to play on phone, and if you were to, it may be a bad experience.”

Hardware requirements

- “Due to this being a low running game, any personal computer with low specifications can be used, this game will not need high tech graphics card, cpu etc.”
- “You will only be able to use inputs with your mouse and will rarely use your keyboard, unless you need to type something, like your player name or specific stocks your using
- “You do not need to have speakers to play my game, but I may add some light music in the background.”
- “This game is very unlikely to need a lot of storage.”

I believe I specified the requirements needed in both software and hardware for my users to be able to play this game. However I believe some parts may still be lacking and not be enough to even put me in a 7 – 8 mark band. Therefore I believe this was a 6 mark model answer.

Finally for the final part of the mark scheme I believe again my answer was in the range of 6 – 8 marks to the criteria of :

Identified measurable success criteria for the proposed solution.

I came to this conclusion via these parts of the analysis in which I wrote:

“It allows them to trade without the thought of possibly losing thousands of a real currency, instead learning with a virtual currency.”

“The competitive elements to this game is what makes it engaging for the audience I am targeting.”

“If the players want, they can change their capital each of them all start with. Ideally, I would need to make it so there is a maximum the players all start with, which should be around a maximum of \$50,000.”

Again my issue was with justification as I still didn’t justify key parts of my answers I gave. Furthermore I also did not write a lot shown clearly here to support a 8 -10 mark answer. I believe this part of my analysis is a more 5 – 7 mark answer.

Altogether, I believe the max mark I would award my self is 7 marks for the analysis. While for some sections I showed a very strong understanding that was with in the top band, most of my answers aligned more with a 6 – 8 mark answer and even some parts could possibly be marked worse, due to how little I wrote, given little to no justification. Hence while I think I could be possibly marked 8 marks, I believe that I have achieved 6 or 7 marks and feel somewhat confident this is a 7 mark answer.