**Supervisor Minutes**

Supervisor: Dr. Rumyana Neykova

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| Meeting Date and Time: | 15/10/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown 206 |
| How I prepared for the meeting | I conducted some research on my initial project idea. However, after going through some difficulties, I decided to change the idea and investigated developing games with unity |
| What we discussed during the meeting | My supervisor proposed a project which would involve working on a mathematical game called bulls and cows. The game could easily be implemented in java, but to get the higher mark and to introduce a bigger challenge, we agreed to implement some of the game using the blockchain technology. Then we laid out a timeline and decided how we can approach this. |
| Results of the meeting | We agreed on the project idea and set a direction for me to take regarding the planning of the project (do background research on blockchain etc.) |
| Actions for the next meeting | My plan for the next meeting is to do research on the technology of blockchain (Ethereum, Solidity) and get a basic idea of how to implement the game in java first. Moreover, my supervisor set me a target to write the Synopsis. |

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| Meeting Date and Time: | 18/10/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I wrote my first version of the Synopsis to discuss it during the meeting with my supervisor. Moreover, I did some research on blockchain and how I can implement it within my project. I also found an online IDE to write Solidity in. |
| What we discussed during the meeting | We went through the report and my supervisor highlighted several key areas which need to be improved on. Moreover, we went over the plan of how to begin developing the game |
| Results of the meeting | We ironed out the issues of several areas of the Synopsis and as a result I know what to improve in the report. Moreover, I have a better idea on how to approach the project |
| Actions for the next meeting | My plan for the next meeting is to refine the Synopsis, improving on the areas my supervisor pointed out. I will also go and start researching and writing some code to test the concept of the game. |

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| Meeting Date and Time: | 22/10/2018 from 1:00pm – 2:00pm |
| Location | Wilfred Brown |
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| How I prepared for the meeting | I refined the Synopsis and improved on the categories |
| What we discussed during the meeting | We discussed how we can plan a set of deliverables to be worked on and handed in each week |
| Results of the meeting | As a result of the meeting, we were able to plan to create a set list of deliverables for each week |
| Actions for the next meeting | Mention the reading in background sources  Making a schedule for each week with deliverables  Swap the problem definitions  Research ether solidity and smart contracts  Write hello world smart contract by 29th October |

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| Meeting Date and Time: | 26/10/2018 from 12:00pm – 1:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I refined the Synopsis and improved on the categories. I also did more research on the new technologies I will be using, as well as setting up a test network to deploy the smart contracts in |
| What we discussed during the meeting | During the meeting we drew a plan of deliverables extending to January, which will help me stay organised and focused |
| Results of the meeting | Because of the meeting, I was able to change my timetable based on the plan we created |
| Actions for the next meeting | Create my first “Hello World” smart contract |
| Meeting Date and Time: | 30/10/2018 from 4:00pm – 6:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I wrote my first “Hello World” smart contract on Solidity using the Remix IDE. I also conducted some more research on the programming language itself |
| What we discussed during the meeting | During the meeting we tried to complete a simple program on solidity that compared two variables to understand the syntax better |
| Results of the meeting | The meeting gave me a better insight of the syntax used in Solidity |
| Actions for the next meeting | Fix the Solidity program that we wrote in the meeting |

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| Meeting Date and Time: | 30/10/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I signed up to an online course on Solidity to aid me with my development, and rewrote the simple number comparing program from the previous meeting to experiment with the language |
| What we discussed during the meeting | During the meeting we broke down the steps to implement the computation of the bulls and cows in Java |
| Results of the meeting | Because of the meeting I have a better understanding of what I must implement within the Java program |
| Actions for the next meeting | Implement the bulls and cows operations within Java |

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| Meeting Date and Time: | 1/11/2018 from 1:00pm – 2:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I implemented part of the bulls and cows program in Java. However, I was not able to fully implement it and prepared some questions for my supervisor |
| What we discussed during the meeting | During the meeting we worked out how we could implement the bulls and cows game in both java and solidity using the same functions. We then concluded that mappings would be appropriate to use in both languages |
| Results of the meeting | As a result, I was able to focus on the mapping element of the program |
| Actions for the next meeting | Implement the mapping of bulls and cows in the program |

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| Meeting Date and Time: | 7/11/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I managed to complete most of the program’s mapping functions. However, due to an issue with a program I installed on my PC, I had to factory reset my laptop and the work was lost. I used strings to obtain the cow and bull count instead. |
| What we discussed during the meeting | During the meeting we implemented the mapping into the Java program and managed to fix errors based on it. |
| Results of the meeting | I was able to learn more about the logic of loops and Hash Mapping in Java, which I did not have much previous experience with beforehand. |
| Actions for the next meeting | Write the solidity version of the bulls and cows program |

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| Meeting Date and Time: | 12/11/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I researched methods to write the solidity code for the bulls and cows calculation (mapping in solidity, function types). |
| What we discussed during the meeting | During the meeting we completed the solidity version of the program, which returned the number of bulls and cows via the getBulls function |
| Results of the meeting | As a result, I was able to gain an insight about developing in solidity, as well as discovering the advantages and shortcomings of the programming language to Java |
| Actions for the next meeting | Research a method to connect the smart contract to the Java programming language, then send “n” between the two programming languages (where n is a variable of any type). |

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| Meeting Date and Time: | 19/11/2018 from 1:00pm – 2:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I researched methods of connecting the smart contract to my Java program but was mainly unsuccessful in the implementation. |
| What we discussed during the meeting | We discussed the method I am going to use to make the connection between the smart contract and the Java program, as well as how I am going to differentiate the players and assign unique identification to them in the Java program. |
| Results of the meeting | I gained knowledge about web3js and connecting a smart contract to Java |
| Actions for the next meeting | Make the Java wrapper using web3js and return a function from the smart contract |

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| Meeting Date and Time: | 26/11/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I managed to successfully install the programs needed to create the web3j java wrapper |
| What we discussed during the meeting | We worked on understanding the java translation of our smart contract which web3j created for me automatically. |
| Results of the meeting | I gained knowledge about web3js and connecting a smart contract to Java |
| Actions for the next meeting | Find a way to use the variables to manipulate the contract using the java class that was generated |

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| Meeting Date and Time: | 03/12/2018 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I worked on fixing some of the errors experienced when the java wrapper was created |
| What we discussed during the meeting | We worked on solving the errors that occurred after we created the wrapper. This involved updating the java version installed on my computer and referencing the web3j jar files. |
| Results of the meeting | I was able to finally eliminate the errors that prevented me from interacting with the class |
| Actions for the next meeting | Interact with the contract by creating variables that manipulate the contract (such as deploying the contract, storing a variable etc.) |

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| Meeting Date and Time: | 17/12/2018 from 3:00pm – 4:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I watched a few video tutorials explaining the next steps in terms of interacting with the contract |
| What we discussed during the meeting | We discussed the progress that I have made with the project and compared it to my deliverables planner. Then we talked about the work that must be done over the Christmas holidays. |
| Results of the meeting | We set some objectives to be met for the next meeting on the 8th |
| Actions for the next meeting | * Update the dissertation portfolio, completing sections 1 and 2 * Transfer the application over to Android Studio * Develop the interface of the app, while working on connecting the variables to the smart contract * Create a Gant Chart to match predicted deliverable dates to the actual dates |

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| Meeting Date and Time: | 14/01/2019 from 11:00am – 12:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I spent the Christmas Break researching the implementation methods of web3j within the android environment, ported the application from eclipse to android studio, and worked on the design of the application. |
| What we discussed during the meeting | We discussed the progress made over the holidays and focused on the complications that I experienced over the few weeks. |
| Results of the meeting | I gained some background knowledge of Git and how to use the command line properly, as well as gaining an insight on what to do next concerning the deployment of the contract |
| Actions for the next meeting | Try and run a test to deploy the contract on the test network, continue filling out the final year project report |

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| Meeting Date and Time: | 22/01/2019 from 2:00pm – 3:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I managed to deploy the contract on the test network using the official web3j documentation, which allowed me to specify and connect to the Infrura Kovan network address within Java |
| What we discussed during the meeting | We tried to find the location that the contract was deployed to and found out that a specific token address was not necessary to connect the contract |
| Results of the meeting | I learnt how to call functions within Java which invokes the smart contract and can pull values from it |
| Actions for the next meeting | Update the project report |

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| Meeting Date and Time: | 22/02/2019 from 11:00am – 1:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I updated the UI and worked on implementing 2 different game modes. Also, I tried to parse the values coming in and out of the smart contract to display it in the UI. |
| What we discussed during the meeting | The next step was to send the values for the secret number and guess to the smart contract via the EditText fields in Android Studio |
| Results of the meeting | I was able to send the values of the numbers to the smart contract to be stored |
| Actions for the next meeting | Update the project report |

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| Meeting Date and Time: | 13/03/2019 from 10:00am – 1:00pm |
| Location | Wilfred Brown |
| How I prepared for the meeting | I updated the UI and worked on displaying the number of bulls and cows within the program. Removed the java game mode due to unforeseen issues and timing problems |
| What we discussed during the meeting | Managed to display the values of bulls and cows within the UI, after noticing an error in the smart contract and re-deploying it |
| Results of the meeting | The UI element of the game was finished |
| Actions for the next meeting | Update the project report for the meeting on Thursday the 14th |