MSc Project Proposal Template

# To be completed for Coursework 2 of Module IS4S706

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| **Enrolment number** | 17076749 – Mark Baber | |
| **MSc award title** | MSc Data Science | |
| **Project title** | GIS and the COVID-19 Pandemic. | |
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| **Main aim of the project** | |  |
| To develop a GIS solution for modelling and predicting the spread of COVID-19. | | |
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| **Project objectives** | |  |
| 1. To explore existing approaches to modelling and mapping the pandemic worldwide. 2. To determine whether GIS technology can be useful in managing the spread of COVID-19. 3. To understand which COVID-19 factors will be important in modelling and prediction. 4. To identify which modelling and prediction algorithms best reflect the spread of COVID-19. | | |
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| **Project description** | |  |
| Insert project description here (maximum 1000 words). To include detail about research methodology selection, proposed methods of data collection (primary and secondary – fully explained) and initial literature review. 1 – Lit Review (600) This report will look to see how the world is using GIS to help stop the spread of COVID-19 and to manage the areas of high risk with more numbers of cases. Here within the UK, and specifically Wales there were a lot of areas affected by the virus significantly, when looking at the cases, and the total per 100k of population, the Valley’s areas were getting a lot of cases. *This report will use the words covid and COVID-19 interchangeably.* 2 - Methodology (200) The ontological position of this work is objectivism, and the epistemological position of the work is positivism meaning data can only be collect based on observed phenomena such as someone being recorded as sick. This research is therefor quantitative in nature, using the deductive approach the hypothesis will emerge from a review of the literature.  Although there are many different types of data analysis including, Machine learning, neural networks and so on, GIS will be used here because understanding location will be beneficial, as it is people who spread the virus.  There are different types of GIS software out there but for the purpose of this project, we will look at the 2 popular types of GIS packages. The 2 packages which will be explored are Desktop GIS and Web GIS, both technologies have a range of advantages and disadvantages. These will be explored below:   |  |  |  | | --- | --- | --- | | **Technology** | **Advantages** | **Disadvantages** | | Desktop GIS | A lot of free options available.  Good speed and performance.  Good community and documentation for a lot of the software packages. | Will need to be installed on all computers who needed access to it.  If using a proprietary software package, could become expensive. | | Web GIS | All processing takes place in the ‘cloud’ and accessed via a web browser.  Access to ‘portals’ which is a framework for sharing and using apps, data and maps.  Software is installed in a central place (database and maps) and can be accessed by the whole team.  Can use multiple data sources. | Could become expensive to develop the software.  Data costs can be very expensive. |   When looking at the advantages and disadvantages explored above, for this type of project there would need to be a web-based GIS system which could be setup within the cloud. This would allow access from any location if there a browser, can link datasets from source such as Gov.uk, Data.gov, ONS and more.  Data Collection  (Recommended for primary and secondary(open-source data) )  With this project being around the COVID-19 virus, there are many datasets freely available on the web. This would | | |
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| **Ethical considerations** | |  |
| Insert ethical considerations here (maximum 200 words)  https://ethics.acm.org/code-of-ethics/software-engineering-code/ | | |
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| **References** | |  |
| Insert references here (maximum of 10) | | |
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| **Project plan** | |  |
| Insert your project plan here. An approximate time plan for the various stages based on a total expected number of hours’ effort (approximately 600 hours). | | |

Make sure not to exceed word limits. One of the requirements of this work is that you are concise and selective in the material that you present.