Project Plan Review

*Project Plan*

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| Description | Task | Outcome | Finish date | Achieved |
| State the Research Objectives and requirement | Project Objectives should be set based on the client’s requirement and being expressed in SMART terms. | Project Objectives have been constructed based on the client’s requirement and being expressed in SMART terms | 23/08/19 | YES |
| Construct Project Milestones | Project Milestone should represent all the completion of each product in the project. | Project Milestones have been listed according the the product(deliverable) of the project | 23/08/19 | YES |
| Construct Deliverables | Deliverables should represent all the product of this project. | Consist of presentation, executive summary. Rmarkdown and technical report. | 23/08/19 | YES |
| Construct Work Tasks | Work Tasks should be generated according to the activities that needs to be done to produce the deliverables | Work Distribution table has been created which include the works that have been distributed across group members. | 23/08/19 | YES |
| Construct Scheduling | Work task should be scheduled in a logical order according to the timeline the team has for the project. Besides, task should be scheduled according to priorities. | Gantt Chart has been implemented to generate the schedule of the project. Logical timeline and task priorities have been included in the chart. | 23/08/19 | YES |
| Construct Critical Path | Critical Path needs to be generated from the schedule according to the priorities of the tasks | Critical path has been generated from the schedule. | 23/08/19 | YES |
| Construct Constraints | Constraints should include all the assumptions and factors that will limit what the project can achieve. | Certain assumptions have been assessed prior to the project and a few constraints too. | 23/08/19 | YES |

*Data Analysis and Model Selection*

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| Description | Task | Outcome | Finish Date | Achieved |
| Understand and Clean data | Problem/Requirements should be properly break down. Data should be cleaned and modify to help further exploration. | Dealing with missing values and data. Standardise the data | 03/09/19 | YES |
| Explore and Analyse | Plots and Summaries should be generated to further analyse and explore the data in order to obtain the solution. | Gained some useful insights from the data by visualization plot | 17/09/19 | YES |
| Select Variable | Variables should be selected by using any of the existing methodologies with justification. | Select variables based on our understanding and literature review on credit risk models | 24/09/19 | YES |
| Fit GLM | The selected variables should be fit in a few models with appropriate linked function and distribution. | Implemented couple methods for variable selection, StepAIC, Lasso and etc. | 01/10/19 | YES |
| Select Model | Fitted Models should be compared by using any of the existing methodologies. | Models are compared based on their accuracy, AUC and GINI score.. | 04/10/19 | YES |
| Validate Model | Selected model should be validated by obtaining the prediction from the selected model to determine the accuracy. | Uses cross validation method and test / training set to validate our models | 09/10/19 | YES |
| Evaluate Results | Result from the validation should be evaluated according to statistic’s knowledge. Justification needs to be made to support the result. | Results have been evaluated by comparing the current model and the old model through their AUC curve. | 14/10/19 | YES |
| Draw Conclusion | Conclusion needs to be drawn according to the evaluated results. | The new model that we have built perform better than the old ones. | 15/10/19 | YES |

*Presentation*

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| Test case description | Expected result | Outcome | Finish date | Achieved |
| Construct Presentation Slides | Presentation Slide need to be constructed according to the elements that need to be presented to the clients. | Hosted a couple of group meetings to break down our report for presentation. | 17/10/19 | YES |

*Technical Report*

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| Test case description | Task | Outcome | Finish date | Achieved |
| Construct Introduction | Introduction should be constructed so that it describes the problem and the context of the client’s requirement. | Briefly explained current struggles in the industry and ways to overcome the issue | 21/10/19 | YES |
| Construct Literature Review | Literature review should be constructed by describing the existing model and the pros and cons of the existing model. | Justified all the methods and methodology that we have used. | 21/10/19 | YES |
| Construct Data Analysis | Data Analysis should include summaries of the data exploration. | Interpret the plots with explanation and findings. | 21/10/19 | YES |
| Construct Method | Methods should be explaining the modelling method that has been utilised in the project. Besides, methods should include the method for variable selection, GLM as well as validation. | The flow of building the model have been explained throughout the report. | 21/10/19 | YES |
| Construct Results | Result should be explaining the model coefficients, assumptions and validation under uncertainty. | The models appear to be quite certain, determined on its confidence interval. | 21/10/19 | YES |
| Construct Model Interpretation | Model Interpretation should be constructed to answer the questions and the requirements given by the clients. | Proper and precise solutions are structured to address clients questions. | 21/10/19 | YES |
| Construct References | References needs to include all the cited material. | References are included at the end of the report. | 21/10/19 | YES |

*Executive Summary*

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| Test case description | Task | Outcome | Finish date | Achieved |
| Summarise problem and context | A concise version of the problem and context from the technical report. | Summarize the problem and context in a non-technical form | 1/11/19 | YES |
| Summarise collected data | A concise summary of the data that has been collected. | Briefly explain the collected data and how the data has been cleaned | 1/11/19 | YES |
| Summarise reviews literature | A concise summary of the professional has done in the past for any similar project. | Summarize the professional work that has been done in the past project. | 1/11/19 | YES |
| Justify the chosen method | Evidence that support the chosen model and methods that have been utilized throughout the project. | Briefly justify the method that has been used with literature review. | 1/11/19 | YES |
| Summarise result | Concise summary of the final result. | Summarise the final result in a non-technical form. | 1/11/19 | YES |
| State uncertainty | Any uncertainty or assumption in the project. | Show the confidence interval plot for the final model. | 1/11/19 | YES |
| Summarise validity and fit of the model | Concise summary of how well the model does. | Briefly explain the performance of the model and the methods of validation being utilized in the project. | 1/11/19 | YES |
| Justify recommendation | Evidence that supports the recommendation given to the client. | Provide recommendations with evidence for the future project. | 1/11/19 | YES |

Project Plan Review

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| Test case description | Task | Outcome | Finish date | Achieved |
| Construct Project Management Summary | Concise summary of the overall project management | Review and comment on the project management | 1/11/19 | YES |
| Construct Team Reflection | Reflect and summarise the overall working experience with each member of the team. | Provide recommendations and what can be done better in the future project. | 1/11/19 | YES |

Work Breakdown

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| Dominic Yan Kit Chow | * Project Plan * Data Exploratory * Literature Review * Technical Report (Introduction, Literature Review, Data) * Executive Summary |
| Jing Heng Lim | * Project Plan * StepAIC * Technical Report (Method, Results) * Project Plan Review |
| Joseph Grench | * Project Plan * Random Forest * Lasso * Technical Report (Method, Results) * Executive Summary |
| Vinnie Ng | * Project Plan * Model Comparison * Discussion * Technical Report (Discussion) * Project Plan Review |

Reflection

Overall the project has been carried out smoothly according to the plan. However, there are a few unforeseen circumstances which lead to some changes to the plan. As there were three different modelling methods being utilized in the modelling process (StepAIC, Lasso, and Random Forest), therefore three modelling processes, (from selecting variables to validate the model), has been carried out separately.

Besides, as the final presentation has happened earlier than planned, the team has cut down the time for preparing the presentation.

There are a few improvements that can be implemented so that the project can be better managed in the future. Firstly, instead of the waterfall model, iterative or agile will be a more adequate methodology for this project. This is because using throughout the project, a lot of testing needs to be done before moving on to the next step. Furthermore, the team can incorporate version control system as it will help to avoid clashing of the code from different team members and save time on combining the code. Last but not least, work can be broken down into smaller parts so that the team can have better time management and task delegation.