FAQs Document:

• Explain the business opportunity and decisions to be made.

To make the business opportunities clearly and precisely to the decision-maker, some factors are counted. These are:

- Cost of designing and reviewing the machine learning solution.
- Decreased the cost of machine learning project and increased the revenue by applying statistical and mathematical approach which represented the true positive result in relation to the business case.
- Another positive effect through the project on the business case is positive customer experiences.
- The project will achieve it's first benefit from the next year.

Apart from this, to get the business opportunities and to take the right decision regarding the machine learning solution, other factors also have considered such as

- Indicated the potential risks of the machine learning process so that decision-maker can be aware about the upcoming risks and challenges,
- Demonstrated both the positive and negative impact of the machine learning solution on the business and scaled it from the small to large project.

• Identify existing solutions or alternatives to inform the decisions.

For the defined hedge fund business case, the existing solution is the machine learning solution. If decision-maker use this machine learning solution such as Gradient Boosting classifier, they will get the hands-on positive experience from machine learning solution as it has exploratory data analysis (EDA), statistical analysis, as well as descriptive analysis using the data visualisation.

• Identify who benefits from the decisions: customers, business users, communities, etc.

From the decision everyone will get benefits such as customers, business users and communities.

• Describe the machine learning solution and scope including limitations of where else this model can be applied.

The machine learning solution is Gradient Boosting classifier that learn the boosting from the prior activities. In this solution some analysis has been done such as tuned hyperparameters, searched the right machine learning evaluation metric that measure a model's accuracy and find the true positive values to meet the business requirements such as F1-Score.

As Gradient Boosting Classifier helps to boost the return on investment (ROI) in marketing business, it can maximise the revenue for the business. However, it is

considered to be aware of the overfitting of the model which is one of the limitations of the Gradient Boosting Classifier. Continuous monitoring to the error predictions and regular tuning the hyperparameters can assist to overcome the limitations.

• What is the value proposition and competitive advantage of using machine learning?

The machine learning models can extract qualitative and quantitative data by encoding and decoding from the real-world data house. Experts can reduce huge number of human errors from the data with higher accuracy using the machine learning models.

Moreover, as machine learning approach or data-driven approach is faster than human approach which supports cost and time reduction continuously.

• What are the dependencies required to deliver the solution?

There are some dependencies required to deliver the solution. These are:

- Analysing the model using bias-detection techniques.
- Constantly monitoring and retraining the model using new data to reflect with the real world.
- Increasing the robustness which is the ability to continue the model with the best performance.
- Recognising the accountability and responsibility that helps to understand the individuals for a machine learning model's output.
- Considering about risks, security and confidentiality of the machine learning algorithms that can breach by selection and self-selection bias and may lead to a high amount of fine for the organization.

• What does success look like? What are the success criteria?

Bringing success for the machine learning algorithm is not easy. However, we can measure the success by considering both improvement and limitations of the machine learning model. When we will anticipate the success, we need to calculate the limitations or deficiencies as well as how to resolve the deficiencies using various techniques in future.

There are two different types of success criteria. These are:

- Model metrics that refer the performance of the model or model's accuracy according to the business case.
- Business performance which considering the business requirements and need to meet with the model's metric such as reducing the riskier company whose values falls by a certain threshold. While metric's outcome will meet with the best performance of the model, it will be included in the success criteria of the machine learning project as a business performance.

• What are the broader business and societal impacts of the machine learning model?

The broader business impacts of the machine learning model:

In broader business, Machine learning model is performing continuously by demonstrating it's faster outcomes and developing the business' positions in the market. Besides this, it's discovering the patterns and correlations between the features as well as personalising the customer engagement and eventually increasing the business' revenue.

Societal impacts of the machine learning model:

Machine learning is changing the world by transforming all segments including healthcare services, education, transport, food, entertainment, and different assembly line and many more. It will impact lives in almost every aspect, including housing, cars, shopping, food ordering, etc

• Are there ethical considerations that may affect the decisions made?

Ethical consideration is mandatory while making decisions for the machine learning model. Because unethical outcome of the machine learning model may affect in everywhere which results social or individual harms. Apart from this, there are some more ethical considerations need to be count during the machine learning process such as bias, explainability with all stakeholders, robustness, accountability, privacy.

• Will it work all the time and how can you depend on it?

It will work all the time if experts monitor the process regularly and check its reproducibility such as error and accuracy.

• How will incorrect predictions be addressed?

Incorrect predictions will be addressed continually by monitoring and analysing the machine learning process.

• What risks are involved?

When machine learning process continue, it can confront with the bias or model drift that are kind of risks for the machine learning solution's outcome. Because, if it's arisen during the process, model will not provide the accurate outcome which may impact on making the right decision.