# Questions

Below are ten questions an audience might ask over this project.

1. Why do we need to invest in this project?
   1. Predicting maintenance failures can greatly benefit a company. There are a lot of products within many industries that receive regular maintenance and that experience failures. If there was a model that could accurately predict a failure before it happened, then the maintenance team could be better prepared to fix it when it happens and the customer could be notified. This also opens up an opportunity to improve preventative maintenance as the team sees what types of failures they receive the most often.
2. How will stakeholders utilize this information?
   1. These predictions can be utilized to improve the maintenance pipeline. It can be used to advise on what tools or parts to pre-order, how to schedule the maintenance team, and how to limit the types of maintenance tests that might be done if you didn’t previously know the failure.
3. Why can we trust these predictions?
   1. The predictions are created from historical data. The model is learning where failures occur based on ones that have already happened. Therefore, it’s aligning that information to shed light on future failures that you would see either way.
4. How can we be sure this analysis doesn’t infringe on customer privacy?
   1. The only information needed for this model is related to the product itself. It is unimportant who or what owns or uses the product therefore all personal information can be fully excluded from any modeling.
5. How maintainable is this?
   1. This model will require maintenance, but with a quality MLOps pipeline in place, that can be done easily. As new data comes in, the model can be retrained every now and then to make sure it’s maintaining its accuracy.
6. What happens if action is taken on an incorrect prediction?
   1. If a team acts on a false failure prediction, the good news is nothing bad will happen. The worst case scenario is that the maintenance team is over prepared. Generally speaking, any tools or parts ordered for a failure that regularly occurs will still be needed at a later date for a different customer. These false predictions can also create a space for model improvement as more data comes in.
7. How can this be used for upcoming products?
   1. As new products are released, they can be tracked in similar ways. They can also be compared to whichever older product it resembles most. This can allow for new products to be improved to help prevent common failures, and it can be watched for those same failures it’s more likely to have.
8. Why is this better than preventative maintenance?
   1. Preventative maintenance is after the fact. It’s still a beneficial analysis, but it won’t inform on immediate actions. Utilizing predicative maintenance instead will allow the teams to be better prepared for the future instead of relying on the past to help explain a failure after it’s happened.
9. How does this benefit our customers?
   1. By saving them time. If the maintenance failure is ready to be fixed before it happens, or immediately after then that means the product gets back to the end user at a much faster pace. This will result in higher customer satisfaction.
10. What resources are required for this project?
    1. From a business standpoint, you need employees who understand predictive maintenance models, Python, a place to store data, and a way to monitor the model once it’s in production. Much of this is free and open source, or likely already available at your business.