Q1. How would you handle imbalanced data if churned customers are fewer than active ones?

We can handle the imbalance dataset using various methods one is we can do Oversampling by increasing the minority class of churned customers by generating data points using SMOTE function also we can do undersampling of majority class which is of active customers which can be done through removing some of the samples from the majority class.

Q2. What features are the most important predictors of churn?

I think these three are the most important predictors of churn as our target is highly dependent on these features .

Monthly Usage Hours: How much time a customer is spending on the platform is one of the main features for predicting churn risk as the customers who use the service more frequently are typically less likely to churn.If there is low engagement it means customer is not finding any appropriate service from the platform and by this churn risk increases.

Tenure: If the customer is availing the service from the long time this is also an important feature

Subscription Plan: The type of subscription (Basic, Standard, Premium) plays a key role. Premium customers may be less likely to churn as they are invested in a higher-tier service, but they might also expect more features. On the other hand, Basic plan customers might be more price-sensitive and more likely to cancel.

Q3. How would you explain the model's predictions to a non-technical business team?

For explaining the churn prediction model to the stakeholder who belongs to a non - technical domain we need to keep in mind that we don’t have to deep dive into technicalities of the model.

We should provide them the overview that what is the objective of this model like this

Objective: "This model predicts which customers are most likely to cancel their subscriptions”

Also we can draw visualizations and also show them these things via diagrams similar to the UML diagrams and show them the graphs scores which helps them to gain knowledge of what is the outcome of this model.

Q4. What steps would you take to deploy this model into production?

For the deployment purpose:

We need to save the model after successful building of the model in Pickle format so that it can be loaded for production.

Then we have to use a framework like Flask or FastAPI which helps us create a backend for our machine learning model by creating a RESTful API that allows real-time predictions. The API will accept customer data as input and return the churn prediction.

We also have to continuously monitor the model performance as it can deteriorate over time.

After this we have the API then only we have to integrate this with our website or whatever application we want to build from the model.