AI Project Outline

## Scenario: Customer Churn

**What is the business problem that needs solving?**

The cost of retaining a customer is much less than the cost of acquiring a new customer. Hence it is essential for any business to prevent customer churn. Being a Mobile Services Operator, it is true for our business too. Currently by the time the customer leaves us and joins another operator, it is already too late. We come to know about it only when we get a request for porting his number to the new operator. By this time, it is already too late and any actions to get him back are usually ineffective. If we can identify which customer are likely to churn, we can act proactively and retain them with a greater probability. This will save the business a lot of revenue in terms of trying to acquire new customers just to fill the void created by the churned customers.

**How can AI solve this problem?**

By collecting the data about all the customers, including the ones who have churned, that includes their demographic profile, usage, complaints etc a ML model can be built that can predict the customers who are likely to churn.

**What are tools/resources needed to implement the solution?**

All the tools that are typical to an MLOps process are needed. This includes tools for

1. Ingesting real time and batch data (eg AWS Kinesis Family)
2. Analyzing and cleaning the data (eg AWS Glue)
3. Transforming the data (eg AWS Lambda)
4. Storing the data (eg AWS S3)
5. Creating ML features, ML model training, ML model selection, Model deployment (eg AWS Sagemaker)
6. Reporting and Notification (eg AWS QuickSight and AWS SNS)

**What ethical challenges might arise?**

Customer demographic and service usage data contains PII data that can used to identify any individual. This poses ethical as well as compliance challenges due to GDPR, CCPA etc

The customer data could be used for other purposes also, for eg his activities could be tracked for used for political campaigning or the data may even be sold to other parties for monetary gains.

**What are some tactics for addressing these ethical challenges?**

1. PII Data Redaction: This prevents exposure of PII data to any unauthorized personnel thus eliminating the risk for it to be used for any malicious activities
2. Audit and Penalties : Regular audits with data lineage should be enforced and huge penalties should be levied in case malpractices are found.