**IBM- Naan mudhalvan Data Analytics with Congnos**

**Phase -2**

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**Branch**  : B.E CSE

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**Topic**  : Data Analytics with Cognous

**Title** : Customer Churn prediction

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In this phase you need to put your design into innovation to solve the problem Customer Churn prediction:

To innovate and solve the problem of customer churn prediction, you can consider these steps:

**1. *Advanced Analytics:***

Utilize machine learning and data analytics techniques to analyze historical customer data. This could include factors like usage patterns, demographics, customer feedback, and more.

**2. *Feature Engineering:***

Identify key features that are strong indicators of potential churn. These features could include contract length, customer support interactions, usage frequency, and payment history.

**3. *Model Selection:***

Choose or develop predictive models, such as logistic regression, decision trees, random forests, or neural networks, to forecast churn.

**4. *Data Security*:**

Ensure that customer data is handled securely and in compliance with relevant data protection regulations.

**5. *Scalability*:**

Build a scalable system that can handle a growing customer base and evolving data.

**6. *Education and Training*:**

Train your team in understanding and utilizing the churn prediction system effectively.

Explain in detail the complete steps that will be taken by you to put your design that you thought of in previous phase into transformation.

Creating a customer churn prediction model involves several steps. Here's a detailed overview of the process:

***1. Problem Definition:***

- Clearly define the problem: In this case, it's predicting customer churn, i.e., identifying which customers are likely to leave your service.

***2. Data Collection****:*

- Gather historical customer data: Collect data on customer behavior, interactions, and demographics. This data might include customer ID, usage patterns, customer support interactions, and more.

***3. Data Preprocessing:***

- Clean and preprocess the data: Handle missing values, remove duplicates, and format data for analysis.

***4. Data Splitting:***

- Split the data: Divide the dataset into training, validation, and test sets. Typically, 70-80% for training, 10-15% for validation, and 10-15% for testing.

***5.Model Training:***

- Train the selected models on the training data. Tune hyperparameters to optimize model performance. Use the validation set to evaluate model performance during training.

***6.Documentation:***

- Thoroughly document the entire process, from data collection to deployment, to ensure that the model is well-documented and can be maintained by other team members.

***7.Communication:***

- Communicate the results and insights to relevant stakeholders within your organization. This ensures that the model's predictions are effectively utilized for decision-making.

***Conclusion*:**

Customer churn prediction is a vital aspect of business operations, and innovation in this field is crucial for success. In conclusion, advancements in machine learning, artificial intelligence, and data analytics have enabled businesses to develop more accurate and proactive churn prediction models. These innovations allow companies to anticipate and address customer churn more effectively, ultimately leading to improved customer retention, increased profitability, and a competitive edge in the market. However, it's essential for organizations to continually adapt and invest in these innovations to stay ahead in the ever-evolving landscape of customer relationship management.