**Execution Plan for Churnalyze – 36-Hour Hackathon Edition**

**Day 1:**

**1. Problem Understanding & Solution Planning (2 hours)**

* **Objective:** Understand the challenge and outline the features and tools you'll focus on.
* **Tasks:**
  + Define the problem: Why churn prediction matters (customer retention and revenue maximization).
  + Map out the key functionalities: predictive model, actionable insights, and basic visualization/dashboard.
  + Identify the tech stack (e.g., Python for ML, Streamlit/Dash for UI, and basic data analysis libraries).
  + Break the work into tasks for team members (if in a team) and set priorities.

**2. Data Collection & Model Selection (3 hours)**

* **Objective:** Prepare the dataset and decide on the predictive model.
* **Tasks:**
  + **Data Gathering:**
    - Use a sample dataset (e.g., churn data from Kaggle or generate a synthetic dataset based on customer behavior).
    - Clean and preprocess data: handle missing values, normalize/scale features if needed.
  + **Model Selection:**
    - Choose a simple, interpretable model (e.g., Logistic Regression, Decision Trees) for quick results.
    - If time permits, test a couple of models to see which gives better results for churn prediction.
  + **Model Training:**
    - Train the model on the preprocessed dataset and evaluate its performance (e.g., accuracy, precision, recall).

**3. UI & Dashboard Setup (4 hours)**

* **Objective:** Create a simple, interactive user interface to display the predictions.
* **Tasks:**
  + Use **Streamlit** or **Dash** to rapidly develop a user-friendly dashboard for visualization.
  + **Key UI Components:**
    - Customer details (ID, engagement metrics, etc.).
    - Predicted churn risk (visual indicator, such as a red/yellow/green color code).
    - Data visualization (charts showing churn trends, impact factors).
  + Integrate the churn prediction model into the UI, ensuring that predictions are displayed clearly.

**4. Basic Integration & Testing (3 hours)**

* **Objective:** Integrate model and UI, test functionality.
* **Tasks:**
  + Connect the trained model to the front-end, so predictions are made based on customer data input.
  + Test the system with sample data and confirm that predictions are accurate.
  + Check for bugs or usability issues. Make sure the tool works smoothly.

**Day 2:**

**5. Refining Features & UX (3 hours)**

* **Objective:** Improve user experience and refine the features based on feedback or testing.
* **Tasks:**
  + Add more user-friendly features, like sorting customers based on churn risk or filtering by customer segments.
  + Enhance the visual appeal of the dashboard (ensure charts are intuitive and clean).
  + Add tooltips, labels, and descriptions to help users understand what the tool does.
  + Ensure model explanations are clear (e.g., "This customer is at risk due to low engagement and high complaints").

**6. Marketing & Pitch Preparation (4 hours)**

* **Objective:** Prepare your final pitch and demo to showcase the tool’s value.
* **Tasks:**
  + Create a compelling narrative for your presentation:
    - **The Problem:** Customer churn and its impact on businesses.
    - **The Solution:** Churnalyze’s predictive power and its value to businesses (e.g., retention strategy optimization).
    - **Key Features:** Predictive model, customer insights, actionable alerts, and real-time dashboard.
  + Prepare a demo of the tool that demonstrates its functionality step by step.
  + Practice delivering the pitch and demo with your team, highlighting the tool's unique selling points (USPs) and its scalability potential.
  + Focus on clarity, enthusiasm, and how the tool can solve real-world problems.

**7. Final Testing & Bug Fixes (2 hours)**

* **Objective:** Finalize the prototype and ensure everything works as expected.
* **Tasks:**
  + Test the tool with different customer data inputs to ensure consistency and accuracy.
  + Fix any bugs or errors in predictions or the user interface.
  + Clean up the code and remove unnecessary files or debugging lines.
  + Double-check the flow of the demo to ensure a smooth presentation.

**8. Final Submission & Presentation (2 hours)**

* **Objective:** Submit your project and deliver the final pitch.
* **Tasks:**
  + Submit the code, demo video (if required), and any documentation or presentations.
  + Present Churnalyze to the judges:
    - Showcase the core features: predictive churn model, interactive UI, and its business value.
    - Explain the technical details briefly but focus on the impact it could have on businesses (reduce churn, optimize marketing efforts, increase revenue).
  + Answer questions, emphasizing scalability, potential integrations, and future improvements.

This plan provides a balanced approach, focusing on building the core product features while ensuring a strong final presentation, all within the 36-hour time constraint of the hackathon.