



# HACKATHON



32% Brainstorming



32% Coding

## ***FINAL ROUND***



1% Rest



23% Ice cream  
Sandwiches



7% Rant



# Synopsis

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In a bustling world where technology bridges gap and brings people closer, imagine a tool that empowers communication in one of the richest and most beautiful languages—Bangla. Many people often type in **Banglish** (a mixture of Bengali language written in the English alphabet), whether it's for convenience or habit. However, there's a growing need for seamless and accurate conversion of Banglish to Bangla, especially for content creation, learning, and cultural preservation.

Your task is to build an innovative **Banglish to Bangla Conversion App** that not only addresses this need but also enhances the user experience with advanced features like chatbots, translation systems, and continuous learning capabilities. This app will redefine how users interact with their language, bridging the gap between convenience and authenticity.

## Scenario

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Rina, a high school teacher in Dhaka, loves writing stories for her students. However, she often types in Banglish because it's faster for her. She struggles with converting her stories into Bangla accurately. On the other hand, her students, who are accustomed to chatting in Banglish, want a tool that helps them with translation and learning proper Bangla expressions.

Rina dreams of an app that can:

- Understand her Banglish inputs.
- Translate them into beautiful Bangla.
- Save her stories as PDFs for sharing.

The students, too, want a chatbot that can answer their queries in Bangla, whether they type in Banglish or Bangla. They envision a tool that evolves over time, learning from their inputs and becoming smarter.

*Your challenge is to build this dream app for Rina and her students.*

# Core Features

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## 1. Authentication

- **Login & Registration:** Implement a secure login and registration system to ensure user-specific experiences.
- **Secure API Calling:** Protect all API endpoints by implementing robust security measures to ensure that only authorized users can access and interact with the system's functionalities.

## 2. Banglish to Bangla Conversion

- **Translation System:** Develop a robust translation model (your own or using pre-trained tools) to convert Banglish text into Bangla with high accuracy

## 3. Content Management

- **Content Creation:** Incorporate a basic yet functional text editor that allows users to write stories or paragraphs in Banglish and convert them into Bangla.
- **PDF Export:** Allow users to export the content as a PDF. Users can set the exported PDF to be public or private from their profile dashboard. Public PDFs are accessible to other users via profile visits or app-wide search.
- **Caption Generation:** Automatically generate a Title and Caption for the PDF using AI, which will be displayed when visiting the user profile.

## 4. Search Functionality

- **App-Wide Search:** Implement a comprehensive search feature that enables users to search for user-uploaded PDFs and user profiles using queries in both Bangla and Banglish.

## 5. Chatbot Integration

- **Banglish Chatbot:** Develop a chatbot capable of understanding and responding to queries in both Bangla and Banglish, ensuring all responses are in Bangla.
- **PDF-Based Query Handling:** Enable the chatbot to access and reference user-exported PDFs, allowing it to answer questions based on the content of saved stories and documents.

## 6. Translation System Improvement

- **Training with Continuous Learning:** Enable users to contribute to improving the app by inputting Banglish text alongside the corresponding Bangla text for the model to learn and improve accuracy over time. While user will contribute with new data, it will go to the admin user to verify and if admin will verify, then it will be ready as training data.

## 7. User Interface and Experience

- **Comprehensive UI/UX:** Design an intuitive user interface that showcases all features and ensures a seamless user experience

## 8. Backend and Infrastructure

- **Database Integration:** Build a scalable backend system to manage user data, inputs, translations, and saved files.
- **Environment file:** Maintain an .env file containing all dependencies and their versions for streamlined development, testing, and deployment.

# Bonus Features

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### 1. Voice Interaction

- **Hands-free content Generation:** Embed voice functionality within the text editor, allowing users to input text using voice in both Bangla and English. But the content will be in Bangla.
- **Voice Assistant:** Enable the chatbot to respond with voice outputs in Bangla, providing a hands-free and interactive experience.

### 2. Smart Editor

- **Auto-Correction for Banglish Inputs:** Enhance the translation system by identifying and correcting common typing errors in Banglish

### 3. Real-Time Collaboration

- **Collaborative Editing:** Allow multiple users to collaborate on writing or translating content in real time

### 4. Analytics Dashboard

- **User Insights and Metrics:** Provide users with an analytics dashboard that displays metrics such as the number of words translated, stories written, chatbot interactions, and other engagement statistics.

### 5. Customizable Bangla Fonts for PDFs

- **Font Selection:** Let users choose from a variety of Bangla fonts when generating PDFs

### 6. Dockerization

- **Containerized Deployment:** Dockerize the application to ensure consistent environments across development, testing, and production

# General Instructions

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Participants are required to create a new GitHub repository at the start of the Onsite Round. To solve these problems, feel free to use any stack or tools you like! **All team members must collaborate within a single repository.**

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*The tasks are provided to guide you during the hackathon, but don't hesitate to go beyond and innovate.*

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## Additional Considerations

- Feel free to use any LLM model you like for chatbot integration—local or API, free or paid!
- Focus on user-friendly API design for easy integration with other services.
- Follow standard practices while maintaining folder structure and file naming conventions.
- Focus on precision in Banglish to Bangla Conversion.
- Ability to handle a growing user base and continuous model learning.
- **ELEGANCY IS THE KEY.**
- Emphasize team collaboration and time management for optimal performance.
- A good README with proper documentation.

## Deliverables

- Source Code repository containing
  - Solutions of the tasks
  - README.md
- Presentation slide
  - Presentation Duration: 5 Minutes
  - Q&A Session: 7 Minutes
  - Content: Include a concise demonstration of all implemented features
- Demo Video
  - A short screen recording that showcases all the application's functionalities