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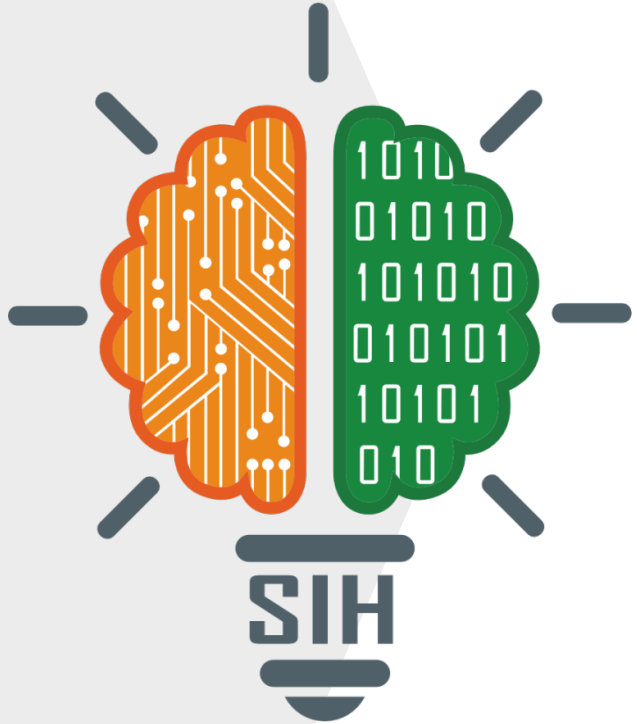
TITLE PAGE

- **Problem Statement ID –**25092
- **Problem Statement Title-**Development of a Digital Mental Health and Psychological Support System for Students in Higher Education
- **Theme-**MedTech / Biotech / HealthTech
- **PS Category-** Software
- **Team Name (Registered on portal):** BenzeneCoder



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Digital Mental Health and Psychological Support System for Students in Higher Education(AI-driven)

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The solution is a confidential web-based platform designed to be a digital safe space for student mental health, accessible via any browser with no app download required. For Students (A Tiered Support System):

- Self-Help Resources
- AI-Guided First-Aid
- Confidential Booking
- For the College Administration:
- Admin Dashboard

It tackles the core issues by shifting the entire model of student mental health from being reactive and intimidating too proactive and approachable.

- The Problem of Stigma and Fear
- The Problem of No Early Detection or Prevention
- The Problem of Under-Utilized Counselors
- The Problem of No Data for Planning
- The uniqueness lies in offering a holistic mental wellness ecosystem—seamlessly integrating chatbot support, counselor booking, self-help resources, and peer forums within a single platform
- Also, the solution is open-source and customizable, removing cost barriers and making it accessible to all colleges.

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TECHNICAL APPROACH

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Programming languages, frameworks and tools :

- Python, React, Node.js with Express.js, MongoDB, Rasa (chatbot), Machine Learning.

Methodology :

- **Development of Core Features:** Build the most important parts: user login, the AI chatbot, and the appointment booking screen.
- **Integrating & Testing:** Connect the app (front end) to your server (backend) and fix any bugs.
- Building chat-bot and integrating it with the web application
- **Finalizing:** Clean up the design and prepare a project report and demo.

Process for implementation:

1. Blueprint:
Defining core features, choosing technologies (React Native, Node.js, Rasa), and sketch the wireframes.

2. Foundation (Backend):
Setting up the server and database. Building the APIs for user login, booking, and resources.

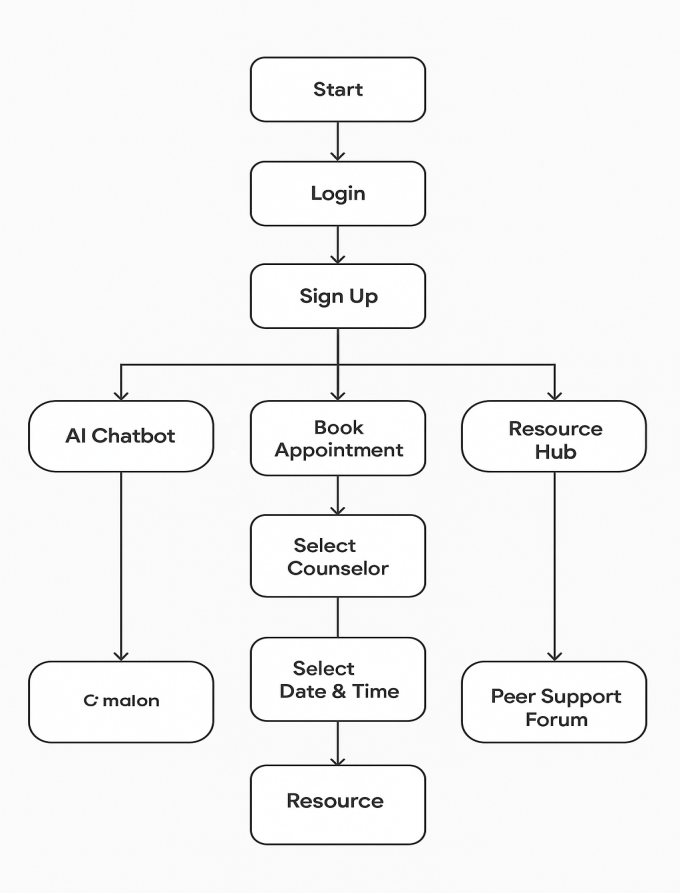
3. Interface (Frontend):
Coding the user screens (Login, Home, Chat) in React with user friendly UI.

4. Intelligence (AI):
Initializing and training the chatbot model with basic conversational intents and emotion understanding with the help of keywords used by the user.

5. Connect (Integration):
Linking the frontend app to the backend APIs and the Rasa chatbot.

6. Launch (Testing):
Conducting end-to-end tests, fixing bugs, and preparing the final prototype for demonstration.

Flow Control of Web Application



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FEASIBILITY AND VIABILITY

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The idea is highly feasible as a student project:

- **Technological**: It uses widely available open-source tools (React Native, Node.js, Rasa) with strong documentation.
- **Operational**: It uses features like chatbot, booking, and resource hub are standard and manageable by a small team.
- **Economic**: It requires minimal costs, limited to hosting; many student-friendly free/low-cost options exist.

Potential Challenges and Risks

- **Data Privacy & Security**: Protecting sensitive mental health data is critical; breaches could have serious consequences.
- **AI Chatbot Limitations**: Risk of misunderstanding or giving inappropriate advice; cannot replace human professionals.
- **User Adoption & Trust**: Students may hesitate to use the app due to privacy concerns or fear of being monitored.

Strategies for overcoming these challenges

- **Data Privacy**: Using anonymization, strong encryption, and a clear privacy policy.
- **Chatbot Limitations**: Adding disclaimers, and triggering human/helpline referrals on critical keywords.
- **User Trust**: Ensuring anonymity, sharing only aggregated data, and designing a professional, calming interface.

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IMPACT AND BENEFITS

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Potential impact on the target audience

- **Accessibility**: 24/7 AI chatbot support removes time and distance barriers.
- **Reduced Stigma**: Anonymous access encourages students to seek help privately.
- **Early Intervention**: Resource hub aids in spotting stress early and learning coping strategies.
- **Community Support**: Peer forum reduces isolation and fosters connection.
- **Institutional Insights**: Anonymized data helps colleges design better wellness policies.

Benefits of the solution (social, economic, environmental, etc.)

- **Social Benefits**
  1. **Reduces Stigma**: Anonymous support normalizes seeking help.
  2. **Early Intervention**: 24/7 chatbot prevents issues from escalating.
  3. **Mental Health Literacy**: Resource hub educates and empowers students.
  4. **Community Support**: Peer forum reduces isolation.
  5. **Equitable Access**: Support anytime, anywhere, overcoming barriers.
- **Economic Benefits**
  6. **Student Retention**: Helps students stay enrolled, protecting revenue.
  7. **Efficient Counseling**: Chatbot filters low-level queries, saving staff time.
  8. **Lower Costs**: Free first-aid reduces external therapy expenses.
  9. **Data-Driven Policies**: Analytics enable targeted, effective wellness programs.
  10. **Reputation Boost**: Institution seen as caring, supportive, and attractive.

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RESEARCH AND REFERENCES

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- Read an article from National Library of Medicine published by US government regarding Indian students facing the issue, with potential solutions- https://pmc.ncbi.nlm.nih.gov/articles/PMC4527955/
- Drawn reference from TEDx Talks regarding the same- https://www.youtube.com/watch?v=JEtNxNW0bRU
- Read a news report of WHO regarding key facts of mental health- https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response
- Got reference for data - https://www.nea.org/nea-today/all-news-articles/mental-health-crisis-college-campuses and https://www.harmonyhit.com/college-student-mental-health-stats/
- Also took help of AI tools such as Google AI Studio for conceptual clarity and for better and enhanced approach.