
CAPSTONE PROJECT

AI CAREER COUNSELOR RURAL YOUTH

Presented By:

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OUTLINE

- **Problem Statement** (Should not include solution)
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

Rural youth continue to face a serious lack of access to structured career guidance due to limited exposure, lack of professional counsellors, and poor awareness of relevant skill development opportunities. Most students are unaware of job-oriented courses, government schemes, or online training platforms that can align their careers with their interests. Traditional, manual career counselling methods fail to scale and reach underserved communities, leading to skill mismatch, underemployment, and reduced career potential.

There is an urgent need for a smart, localized, and accessible cloud-driven solution that offers personalized, real-time career guidance for rural youth.

PROPOSED SOLUTION

- A cloud-native AI system, deployed on IBM Cloud, to provide individually tailored career counseling to rural youth based on their age, interests, and qualifications.
- Datasets covering government schemes, skill training platforms, and employment opportunities are securely stored in IBM Cloud databases.
- The AI uses IBM Granite and Watson NLP to analyse user queries, recommend career paths, and answer questions in natural language.
- The experience is delivered via a web or mobile app (hosted on IBM Cloud), accessible in multiple local languages, with a simple user interface.
- Real-time feedback from users is collected and analysed—enabling continuous improvement.
- Personalized guidance based on age, interests, education, and local job market trends.
- Inform about job-oriented courses, government schemes, and online learning resources.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing and implementing the rental bike prediction system. Here's a suggested structure for this section:

System requirements:

- IBM Cloud(mandatory)
- IBM Watson Assistant, IBM Granite
- IBM Cloud object storage for dataset handling

Technologies Used:

- AI Language Model (LLM) like Llama-3 or WatsonX
- LangGraph + ReAct

ALGORITHM & DEPLOYMENT

- Algorithm Selection:
 - Natural Language Understanding to analyse input (age, interest, qualification)
- Data Input:
 - Student profile (age, qualification, interest, location)
 - Real-time data: government schemes, local job demand, course info.
- Training Process:
 - Finetune LLM or use prompt engineering for guiding rural career topics
 - Models trained on Q&A career data and guidance scenarios, using IBM.
- Prediction/Recommendation:
 - Real-time suggestions delivered through the AI using the IBM Cloud Deployed application.
- Deployment:
 - Cloud-based deployment for scalability
 - All operations and scaling controlled from the IBM Cloud dashboard.
 - APIs configured with IBM

RESULT

IBM watsonx

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Build

AI Model: llama-3-3-70b-instruct

Setup

Configuration

Framework LangGraph Architecture ReAct

Instructions

you are Career counsellor agent. Ask the age, interest, qualification then provide personalised career guidance to rural youth.

Knowledge

Tools

Add a tool Create custom tool

Agent preview

DK You: 05:02 PM

age 23, interest create a new things, qualification b.tech passout

watsonx Agent 05:02 PM

Based on your age, interest, and qualification, here are some career guidance suggestions:

Career Options:

1. **Product Designer:** With a B.Tech degree and an interest in creating new things, you can explore a career in product design. You can work with companies to design and develop innovative products, or even start your own product design firm.

2. **Software Developer:** As a B.Tech passout, you have a strong foundation in programming and software development. You can work with companies to develop new software products, or contribute to open-source projects.

3. **Innovation Consultant:** Many companies are looking for innovative solutions to stay ahead in the market. As an innovation consultant, you can help companies identify areas for improvement and develop new products or services.

4. **Entrepreneur:** If you have a passion for creating new things, you can consider starting your own business. You can develop a product or service that solves a real-world problem, and work towards making it a successful venture.

5. **Research and Development Engineer:** In this role, you can work with companies to develop new

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foundation

RESULT

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5. **Research and Development Engineer:** In this role, you can work with companies to develop new technologies and products. You can apply your technical skills to create innovative solutions and improve existing products.

Skills to Develop:

1. **Programming skills:** Continue to develop your programming skills in languages such as Python, Java, or C++.

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RESULT

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Unsaved



New agent +

Deploy



Build



Model: llama-3-3-70b-instruct



Setup

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Instructions

[Advanced configuration](#)

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1. **Programming skills:** Continue to develop your programming skills in languages such as Python, Java, or C++.
2. **Design thinking:** Learn about design thinking principles and methodologies to develop innovative solutions.
3. **Communication skills:** Develop strong communication skills to effectively collaborate with teams and communicate your ideas to stakeholders.
4. **Problem-solving skills:** Improve your problem-solving skills to identify and address complex problems.
5. **Business acumen:** Develop an understanding of business principles and practices to succeed as an entrepreneur or innovation consultant.

Next Steps:

1. **Take online courses:** Take online courses or certification programs to develop your skills in areas such as product design, software development, or innovation consulting.
2. **Network with professionals:** Attend industry events, join online communities, or connect with professionals on LinkedIn to learn more about your desired career path.
3. **Participate in hackathons:** Participate in hackathons or innovation challenges to showcase your skills and creativity.
4. **Build a personal project:** Work on a personal project that demonstrates your skills and interests, and share it on platforms such as GitHub or Behance.

Type something...



RESULT

IBM watsonx

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Share feedback Unsaved New agent + Deploy

Build

AI Model: llama-3-3-70b-instruct <

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Instructions [Advanced configuration](#)

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Add a tool Create custom tool

Agent preview

and communicate your ideas to stakeholders.

4. Problem-solving skills:

5. Business acumen:

Next Steps:

1. Take online courses:

2. Network with professionals:

3. Participate in hackathons:

4. Build a personal project:

5. Pursue higher education:

Remember, your career journey is unique, and it's essential to stay flexible and open to new opportunities and challenges. Good luck!

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CONCLUSION

- The AI Career Counsellor enables rural youth to make informed career choices.
- Provides scalable, localized, and always-available guidance.
- Bridges the information and counselling gap versus traditional methods.
- The result: Accessible, personalized, and up-to-date career support for underserved communities.

FUTURE SCOPE

- Integrate voice support (for low literacy users)
- Expand to include mental health and entrepreneurship guidance
- Connect with local mentors/volunteers
- Roll out support for more local languages and rural regions across India.
- Integrate live government and NGO data feeds for real-time scheme/job updates.
- Extend system reach using mobile SMS and IVR modules (IBM Cloud Communications APIs).
- Incorporate advanced analytics and reporting for impact measurement.

REFERENCES

- Research on Career Guidance Gaps in India
- AI in Education Review Papers
- Government Skill Development Schemes
- IBM WatsonX LangGraph Documentation
- Official IBM documentation: Granite, Watsonx, Cloud object storage.
- Academic research on AI-driven career guidance and rural education.
- Government skills portals and job matching services.

IBM CERTIFICATIONS



IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Deepesh Karma

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 18, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/55d2dcd4-7231-4c2d-83e9-f04dd67be96f>



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IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Deepesh Karma

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 20 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU