Pankhudi Raj

Personality Development Assignment

Q1. Tell Us About Yourself: -

My name is **Pankhudi Raj**, and I am currently completing my **B. Tech**, where I have built a strong foundation in computer science and technology. Throughout my academic journey, I have developed a keen interest in **Python Coding, and emerging fields like Artificial Intelligence and Machine Learning and Data Analytics**.

As part of my coursework and personal learning, I have worked on several projects, including website development, Chrome Extension, and small-scale AI/ML implementations. I have also completed internships/mini-projects where I gained hands-on experience in understanding user needs, designing responsive interfaces, and working with modern tools and technologies. These experiences helped me strengthen both my technical and problem-solving skills.

Along with academics, I enjoy exploring fields that enhance my creativity and analytical thinking. I regularly work on improving my coding skills and understanding of real-world applications of technology, which aligns well with the roles I am preparing for.

Overall, I would describe myself as a self-driven learner who enjoys taking initiative, learning new tools quickly, and contributing meaningfully to team-based projects. I look forward to applying my skills and continuing to grow in a professional environment.

Q2. What made you choose B.Tech as your field of study?

I chose B.Tech because since young, I've always been fascinated by how technology shapes our world and solves real-life problems. During school, I naturally gravitated toward analytical subjects and enjoyed understanding how things work. That curiosity, combined with my interest in building practical solutions, made engineering the right fit for me. B. Tech aligns well with my strengths in problem-solving and logical thinking, and it gives me the opportunity to work in a field where innovation has a direct impact on society and industries.

Q3. Describe your final year project and its significance.

My final year project is **"Jarvis – An AI-Based Personal Assistant"** designed to automate daily tasks using speech recognition, NLP, and system-control modules. The goal is to create a hands-free assistant capable of performing actions like opening applications, fetching information, sending emails, and controlling basic system operations through voice commands.

I'm creating the core NLP pipeline, integrating speech-to-text, intent detection, and command execution. I'm also working on optimizing the assistant's response accuracy and building custom modules for tasks like reminders and web automation.

I'm following a modular design approach—breaking the system into components such as **Voice Interface, Command Processor, Machine Learning Model, and Execution Engine**. This is helping me test and improve each module independently.

The project's significance lies in how it demonstrates real-world AI application for productivity, accessibility, and automation. It's strengthening my understanding of deep learning, API integration, and human-computer interaction, and showcasing me how AI can simplify everyday user experiences.

Q4. Have you worked on any real-world projects during your studies?

Yes, I worked on a real-world project called the *School Bus Round-Trip Attendance & Safety Alert System*.
The purpose of the system was to ensure student safety by automatically tracking whether a student boarded the bus in the morning and returned in the evening, and sending alerts to parents if a return scan was missing. This solved a real problem schools face in monitoring student movement and providing immediate safety notifications.

My role was full-stack developer and system designer.
I handled the complete architecture using **Supabase** for the database, **FastAPI (Python)** for the backend, **HTML/JavaScript** for the frontend, and **QR code scanning** using OpenCV and PyZbar. I designed the database schema, implemented row-level security, built the attendance logic, developed the scanning modules for the bus device, created the admin dashboard, and integrated SMS/Email alert automation.

Skills I applied included API development, database design, real-time QR scanning, frontend UI development, and integrating external messaging services. I also coordinated the end-to-end workflow so all components worked seamlessly.

The outcome was a fully functioning safety system capable of real-time attendance tracking, automated alerts, and complete daily reporting. It significantly improves safety oversight and could be deployed in real school environments.

Q5. What technical skills do you possess that make you a suitable candidate for this AI Developer position? (including AI developer as a job role as I recently had this interview)

I believe I'm a strong fit for this role because I have a solid foundation in both core AI concepts and the practical engineering skills needed to build real-world systems.

Technically, I'm proficient in Python, and I regularly use libraries like NumPy, Pandas, Scikit-learn, TensorFlow, and PyTorch for model development and experimentation. I also have hands-on experience with deep learning architectures such as CNNs, RNNs, and Transformers, which I have applied in projects like image classification, recommendation systems, and an end-to-end bus safety and attendance system that uses machine learning and automation.

From an engineering perspective, I'm comfortable working with APIs, FastAPI/Flask, SQL, and cloud platforms such as Supabase for backend data workflows. I also understand version control (Git), building modular code, and deploying models in a way that integrates smoothly with frontend and hardware components.

What I think adds real value is my ability to learn quickly and adapt to new tools. In my projects, I have picked up frameworks like ZXing.js, OpenCV, PyZbar, and integrated them into full-stack AI solutions. This makes me confident that I can adapt to any new technology your team uses.

Overall, my combination of machine learning knowledge and a strong willingness to learn makes me well-suited for this AI Developer role.

Q6. What are your career goals in the next five years?

In the next five years, I see myself growing into a strong AI engineer who can build scalable, real-world AI solutions. I want to deepen my expertise in machine learning, MLOps, and deployment, while taking on more challenging projects that create real impact for the company. At the same time, I'm looking forward to continuously learning, contributing to team success, and gradually taking on more responsibility—possibly mentoring juniors or leading small AI modules as I grow.

Q7. What do you consider your strengths and weaknesses as a B. Tech graduate?

As a B. Tech graduate, my strengths include strong problem-solving skills, solid technical knowledge in AI/ML, understanding system architecture, and the ability to quickly learn new technologies. I'm also good at breaking down technical concepts so both technical and non-technical people can understand them.

One weakness I've noticed is that I tend to overthink or over-analyse a task. Though this makes me consider every possible angle of the problem for the varied solutions but,this can slow me down. I've been improving this by prioritizing tasks better and setting stricter time limits, which has made my work more efficient.

Q8. How do you handle failure or setbacks in your work?

I believe setbacks are a natural part of learning, especially in tech. Whenever something goes wrong, I take a step back, analyze the root cause, and identify what I can improve. I treat it as feedback, not a failure. For example, in one of my projects, a module didn't work as expected, so I debugged the issue, reworked the logic, and tested multiple approaches until it was fixed. I focus on learning from the experience and applying that knowledge so I don't repeat the same mistake. It helps me grow faster and deliver better results.

Q9. Why do you want to join our company?

I want to join your company because of your strong focus on innovation and the impactful AI solutions you're building. Your culture of learning and experimentation aligns with my own goals, and I see great opportunities to grow while contributing meaningfully to projects that push technology forward. I'm genuinely excited about the kind of work your team does.

Q10. Describe a situation where you had to work under pressure to meet a deadline. (Bus Attendance Project Version)

One situation where I worked under pressure was during the development of my School Bus Round-Trip Attendance & Safety Alert System. We had a strict deadline to demonstrate a working prototype that could scan QR codes, update real-time attendance in the database, and trigger alerts for missing evening scans.

With limited time, I prioritized the critical components — setting up the Supabase database, building the FastAPI backend, and integrating the Python QR scanner. I broke the work into smaller modules, tested each part quickly, and debugged issues late into the night to ensure system reliability. Despite the time pressure, I delivered a fully functional prototype that accurately captured attendance and generated alerts, which gave me strong confidence in working effectively under deadlines.