



Interview challenges

Hiring people is the most important step to build a good organization. If they fail in building a good team or if they delay in hiring, the organization will also fail in project execution.

A normal hiring workflow process usually includes following high-level steps,

- Step-1 : Demand generation by project execution team
- Step-2 : Collect, screen & shortlist matching profile from different sources
- Step-3 : N-rounds of interview process as per organization policy
- Step-4 : Make offer

Here the hiring team is able to manage all steps independently on their own, but when it comes to step-3 i.e. **[Interview process]**, they are dependent on a panel of experts.

Finding a slot from the **[Interview panel]** is becoming difficult day-by-day as the panel is already occupied so much in their day-to-day transactional work that it becomes very difficult for them to arrange an interview slot.

Another challenge is that if any expert has been voluntarily nominated, the hiring team takes them for granted and overloads them with piles of profiles. So many times, it looks like the hiring team is not fair and transparent with volunteer panelists by having evenly distributed profiles among all panelists. In most organizations taking an interview is like a support work to be done as charity work without any reward or **[incentivizing per interview]**.

AI PanelPro : Strategy & Approach

1. Get the detailed [Job Description]

Project team who raises the demand should provide the detailed [Job Description] to the hiring team. Here [Job Description] plays an important role to filter the candidates profile e.g. [Job Description] should be covering

- a. Technology skill required
- b. Domain skill required
- c. Behavioral skills required
- d. Overall and skill wise experience required in months
- e. Minimum education qualification
- f. Certification & Rewards
- g. Must-have & Good-to-have skills
- h. Others (If anything important, optional)

2. Prepare the [Question sets]

Usually questions vary based on role, technology group and domain. Sametime it can be felt that [Intent to know] from the question may be the same, but the style of asking the very same question will vary from one interviewer to another.

Based on my personal experience and friend's experience who have been part of countless interview panels throughout their career, I feel that many questions can be standardized under the category of [Roles, Technology & Domain]. There will be some contextual questions based on the candidate profile. Based on need, the same standard questions can also be contextualized considering the candidate profile.

Questions under each [Question sets] based on [Roles, Technology & Domain], will have a predefined average duration time, in which the candidate will be requested to articulate the best answer with maximum coverage to the intent of the question.

[AI PanelPro (AIP)], will have sufficient knowledge in terms of content and FAQs applicable for [Roles, Technology & Domain]. However, LLMs available in the market are so knowledgeable that local level knowledge management may not be important for answer evaluation.

3. Pre-Interview Process

[AI PanelPro (AIP)] will have the intelligence that it can send auto-reminders via call / email notifications. [AI PanelPro (AIP)] will parse the job description and candidate profile to align expectations.

- a. [AI PanelPro (AIP)] will identify core skills and nice-to-have skills.
- b. [AI PanelPro (AIP)] will fetch or prepare the [Question set] for required [Roles, Technology & Domain] salting along with difficulty & importance.

AI PanelPro : Key design consideration

1. 2-way uninterrupted communication

- Interviewer will finish the complete question first, then request the candidate to answer.
- Candidate will reply to the complete answer to the very same question only, not any other question.

2. Counter questions

- Based on the candidate's complete answer, there may be some counter question or clarification required.
- Any counter question should also be processed in **[2-way uninterrupted communication]** mode only.
- **[Counter questions]** are not considered in the simulation

3. Question level feedback & assessment

- To make the hiring process transparent, feedback can be shared for each question with high-level [Right/Wrong] in the answer
- **[Question level feedback & assessment]**, can be shared as filler between the two questions i.e. after complete answer for last question asked and before next-question to be asked.
- **[Question level feedback & assessment]** are not considered in the simulation

4. Applicability in industry

- Organizations may decide which roles they would like to take help from AI.
- In the IT world, to my view delivery roles like developer, tech-lead, technical architect, scrum-master, project-manager, others who do not play CXOs roles, should be the preferred roles to start with.
- However, being from the IT industry there will be a shadow of IT industry unintentionally, [AI Interview Agent]

5. Not a replacement of Human Panel

- The intent of **[AI PanelPro (AIP)]** is not to replace the human-panel, rather this is to solve the issue of slots availability by human-panel.
- Just like peer team member, **[AI PanelPro (AIP)]** will be the co-panelist, who may ask question on-behalf of human
- **[AI PanelPro (AIP)]** can work in both mode either lead-panel role or shadow-panel role.

6. Ethical practices & potential fraud

- **[Interview process]** is one the high volume task, just like payment-transaction a high-volume activity. The main objective of **[AI PanelPro (AIP)]** is to enable humans to do more quality tasks of thinking, evaluating the candidate during the answer as co-panelist.
- **[AI PanelPro (AIP)]** will also detect fraudulent activities at candidate's premises with use of camera, microphone and technology.

7. Hallucination

- To avoid the hallucination issue, the process is being kept very simple

implemented microservices architecture? Specifically, what design principles and tools did you use, and what challenges did you encounter?"

Response Window: 4 minutes

Question 2:

"In large systems, performance is a critical factor. Can you explain a scenario where you optimized the performance of your application? What strategies and tools did you use to achieve this?"

Response Window: 3 minutes

Question 3:

"What is your understanding of API-first design, and how have you applied this principle in your previous projects?"

Response Window: 3 minutes

Question 4:

"How do you ensure security-first design in your applications? Can you provide an example of implementing security measures, such as authentication and data protection, in a project?"

Response Window: 4 minutes

Question 5:

"Could you explain how you handle reusable code in your projects? For instance, how do you design project directories or manage reusable components like database models or utility libraries?"

Response Window: 3 minutes

Question 6:

"You've worked with both SQL and NoSQL databases. Can you compare them in the context of one of your projects and explain why you chose one over the other?"

Response Window: 3 minutes

Question 7:

"As a technical leader, how do you ensure your team follows best practices for writing unit tests and maintaining code quality? Can you share a specific approach or strategy?"

Response Window: 4 minutes

Question 8:

"Explain a design pattern you used recently in your project. Why did you choose this pattern, and how did it benefit the system?"

Response Window: 4 minutes

Question 9:

"How would you design a user-management system for a platform supporting features like sign-up, sign-in (via OTP), reset password, and forgot password? Briefly discuss the microservices and database schema you would use."

Response Window: 5 minutes

Question 10:

"What is your approach to defining and implementing CI/CD pipelines in your projects? Can you describe your experience with tools like Jenkins or GIT?"

Response Window: 3 minutes

Optional Follow-Up Questions (if time allows)

1. *"Can you share your perspective on performance KPIs and how to achieve them in a high-traffic application?"*
2. *"What is your understanding of observability? How have you implemented observability features in your applications?"*
3. *"How do you approach handling SONAR issues like bugs, vulnerabilities, and code smells? Have you ever updated a SONAR policy?"*
4. *"What is your view on audit logs, and how do you implement them to ensure compliance?"*
5. *"Can you explain the difference between `StringBuilder` and `StringBuffer`, and when would you use each?"*

"In large systems, performance is a critical factor. Can you explain a scenario where you optimized the performance of your application? What strategies and tools did you use to achieve this?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"In a recent e-commerce application, we faced performance bottlenecks during peak traffic hours. To address this, we implemented a multi-pronged approach. First, we profiled the application using tools like JProfiler to identify performance hotspots. We optimized database queries by creating indexes, using caching strategies, and minimizing round trips. We also employed asynchronous processing using message queues to offload heavy tasks. To further enhance performance, we implemented load balancing and horizontal scaling using techniques like Kubernetes. We continuously monitored the application's performance using tools like Prometheus and Grafana to proactively identify and address issues."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 3:

"What is your understanding of API-first design, and how have you applied this principle in your previous projects?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"API-first design is a development approach where APIs are designed and developed before the implementation of the actual services. This approach ensures that the API contracts are well-defined and consistent, leading to better integration and collaboration between teams. In a recent project, we adopted an API-first approach using OpenAPI Specification (OAS). We defined the API contracts early in the development cycle, which allowed for early testing, validation, and documentation. This approach enabled us to develop the frontend and backend teams concurrently, accelerating development and improving overall project efficiency."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 4:

"How do you ensure security-first design in your applications? Can you provide an example of implementing security measures, such as authentication and data protection, in a project?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"Security is a paramount concern in modern software development. I employ a layered security approach, incorporating multiple defense mechanisms. This includes robust authentication and authorization mechanisms, such as OAuth2 and OpenID Connect, to protect sensitive data. I also implement secure coding practices, regularly review code for vulnerabilities, and utilize tools like SonarQube for static code analysis. In a recent project, we secured a web application

using OAuth2 for authorization. We also implemented HTTPS to encrypt communication, protected sensitive data using encryption techniques, and regularly conducted security audits to identify and mitigate potential threats."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 5:

"Could you explain how you handle reusable code in your projects? For instance, how do you design project directories or manage reusable components like database models or utility libraries?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"I leverage a modular approach to organize my projects, separating concerns into distinct modules. This promotes code reusability and maintainability. I employ design patterns like the Factory and Singleton patterns to create reusable components. For database models, I use an ORM framework like Hibernate to map them to database tables, making them reusable across different projects. I also utilize version control systems like Git to manage reusable code effectively. I create separate repositories for shared libraries and use dependency management tools like Maven or Gradle to incorporate them into projects. This approach ensures consistency and facilitates easy updates and maintenance."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 6:

"You've worked with both SQL and NoSQL databases. Can you compare them in the context of one of your projects and explain why you chose one over the other?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"In a recent e-commerce project, we evaluated both SQL and NoSQL databases to determine the best fit for our data storage needs. While SQL databases provide strong consistency and ACID compliance, they can be less flexible for handling unstructured data and high-write workloads. NoSQL databases, on the other hand, offer excellent scalability and flexibility but may compromise on strong consistency. We chose a hybrid approach, using a relational database (MySQL) for structured data like customer information and order history, and a NoSQL database (MongoDB) for unstructured data such as product reviews and user preferences. This combination allowed us to optimize performance, scalability, and data flexibility."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 7:

"As a technical leader, how do you ensure your team follows best practices for writing unit tests and maintaining code quality? Can you share a specific approach or strategy?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"As a technical leader, I emphasize the importance of test-driven development (TDD) and continuous integration/continuous delivery (CI/CD) pipelines. We establish clear coding standards and guidelines, using tools like SonarQube to analyze code quality and identify potential issues. Regular code reviews are conducted to ensure adherence to best practices and to foster knowledge sharing. To promote a culture of quality, we set specific code coverage targets and track them over time. We also encourage the use of mocking frameworks to isolate units of code and write effective unit tests. By combining these strategies, we maintain high code quality and ensure the reliability of our applications."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 8:

"Explain a design pattern you used recently in your project. Why did you choose this pattern, and how did it benefit the system?"

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"In a recent microservices project, we employed the Observer pattern to implement a real-time notification system. This pattern allowed us to decouple the notification logic from the core business logic, making the system more flexible and scalable. When a specific event occurs, the subject (the event source) notifies all registered observers (the notification services), ensuring that they receive updates in real-time. This pattern improved the system's responsiveness and reduced coupling between components."

[AI PanelPro (AIP)] receives the candidate-1's response, assesses internally and asks the next question.

Question 9:

"How would you design a user-management system for a platform supporting features like sign-up, sign-in (via OTP), reset password, and forgot password? Briefly discuss the microservices and database schema you would use."

Candidate-1 said: *(Candidate-1's response provided in the next prompt.)*

"I would design a user-management microservice responsible for handling user-related operations. The microservice would interact with a dedicated user database, storing essential information like user ID, email, phone number, hashed password, and security tokens. Key Microservices: User Management Microservice: Handles user registration, authentication, authorization, password reset, and profile management. Database Schema: users table: user_id (PK), email, phone_number, hashed_password, salt, created_at, updated_at

Summary Table: Sample Feedback for 33 Candidates

Candidate	Gender	State	Q1: Microservices	Q2: Performance Optimization	Q3: API-First Design	Q4: Security Design	Q5: Reusable Code	Q6: SQL vs NoSQL	Q7: Code Quality	Q8: Design Pattern	Q9: User Management	Q10: CI/CD	Avg. Score
Amit Kumar (C1)	Male	Bihar	9/10	8.5/10	8/10	8.5/10	8.5/10	9/10	9/10	8.5/10	9/10	9/10	8.7/10
Shiv Raj (C2)	Male	Jharkhand	9/10	8.5/10	8/10	8.5/10	8.5/10	9/10	9/10	9/10	9/10	9/10	8.8/10
Arjit Da (C3)	Male	Uttar Pradesh	6.5/10	6/10	6/10	5/10	4/10	6/10	6.5/10	7/10	6.5/10	6.5/10	6.5/10
Priya Sharma	Female	Maharashtra	8.5/10	7.5/10	8/10	7.5/10	8/10	8.5/10	8/10	8/10	8.5/10	8.5/10	8.0/10
Saba Khan	Female	Delhi	8/10	8/10	7.5/10	8/10	7.5/10	8/10	8/10	8.5/10	8.5/10	8.5/10	8.1/10
Sameer Sheikh	Male	Gujarat	7.5/10	8/10	7/10	7.5/10	7/10	8/10	7.5/10	8/10	8/10	8/10	7.7/10
Lata Joshi	Female	Rajasthan	8.5/10	7.5/10	8/10	8/10	8/10	8/10	8/10	8.5/10	8.5/10	8.5/10	8.1/10
Amandeep Kaur	Female	Punjab	9/10	8.5/10	8/10	8.5/10	8.5/10	9/10	8.5/10	9/10	9/10	8.5/10	8.6/10
Arjun Iyer	Male	Tamil Nadu	9.5/10	9/10	8.5/10	9/10	9/10	9/10	9/10	9.5/10	9.5/10	9.5/10	9.2/10
Maria D'Souza	Female	Goa	8.5/10	8/10	8/10	8.5/10	8/10	8.5/10	8/10	8.5/10	8.5/10	8.5/10	8.2/10
Vikrant Das	Male	West Bengal	8/10	7.5/10	7.5/10	7.5/10	7.5/10	8/10	8/10	7.5/10	8/10	7.5/10	7.7/10
Sonia Pillai	Female	Kerala	8/10	8/10	7.5/10	8/10	8/10	8.5/10	8/10	8/10	8.5/10	8/10	8.0/10
Rashmi Verma	Female	Bihar	8/10	7.5/10	8/10	8/10	7.5/10	8/10	8/10	8/10	8.5/10	8/10	7.9/10
Zoya Ali	Female	Karnataka	8.5/10	8/10	8/10	8.5/10	8.5/10	9/10	8.5/10	8.5/10	8.5/10	8.5/10	8.4/10

About author

Profile : [Rajesh Verma - Brief profile](#)

Source : link for this article [here](#)

Series : S2 (Artificial Intelligence)

Episode : WHITEPAPER : [S2-AIGAI] How I simulated AI for the interview panelist

Author's approach : [Rajesh](#) wants to share his learning & experience gained throughout his career from various sources. Author started the series on architectural topics including AI/ML & GAI topics and this article is one of the episodes in that attempt. Author feels that lots of information is available on various forums, but scattered here & there. Episodes in this series will be designed for most of the relevant topics in architecture-&-design, published gradually and organized in logical sequence. Principally episodes will have linkage with other episodes, so that readers can have proper connection among the topics and would be able to correlate with ongoing activities in their software life. Topics for example will be related to functional architecture, integration architecture, deployment architecture, microscopic view of mostly architecture-building-blocks (ABBs), security guidelines & approach to comply, performance KPIs & engineering, git branch & DevOps enabled automation strategy, NFR aspects (e.g. scalability, high-availability, stability, resiliency, etc.), commonly used architecture styles & design patterns, cloudification approaches, multi-tenancy approach, data migration, channel-cutover & rollout strategy, process standardization & simplification, greenfield rollout & brownfield transformation journeys, etc.

Thank you for reading the post, please stay connected.

Design Prompt : [AI PanelPro] is an AI agent for an interview panel who will perform an interview process on-behalf of a human panel for all industry segments. In the design please show the interviewer side with one human & AI agent and the other side of the candidate with one human.