BuildNexTech (Frugal Testing)'s Job Profile

ASIIGNMENT SUBMISSION

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SapID : 590010637

All questions below are mandatory to answer.

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Please answer the six mandatory questions.

1. Please confirm your consent to sign a bond for 30 months (including a 1-year internship).Only Submit your assignment if you are comfortable with this bond.

A] I am comfortable with signing a bond with the company, including a 1-year internship

2. Have you received the stipend and CTC details? Please confirm by providing the details here.

A] yes, we have received the needed information related to the Stipend and CTC

3. Are you willing to relocate to Gachibowli, Hyderabad?

A] I am a permanent Resident of Hyderabad (born and bought up), I reside in Secunderabad, so therefore it will be easy for me to access the office through private/public commute, or if need be I can also shift to Gachibowli and or around Mindspace

4. What motivated you to pursue a career in Software Engineering (SE)?

My motivation to become a software engineer was always from strong desire and mindset to create something that helps regular people , a software that maybe solves something major that it becomes engrained into daily lifestyle or to solve just 1 complex issue in the world that makes life easier for the people who need more help than others.

5. Why do you want to join a software testing firm like Frugal Testing?

I want to join Frugal Testing because im not only intrigued by the company's use of innovative and practical methods to solve real world challenges, especially in a fast moving area like cloud and automation. The company's projects focus on deriving meaningful results and user experience which matches my interest in building something that actually helps the common folk.

I am eager to work in an environment where i can learn for leading experts who not only help in developing my skills but also help me contribute in a greater way by providing solutions that

reach a larger audience. Being part of Frugal Testing would definitely give me the platform to grow alongside a team of experts and individuals that value change and progeress in the industry.

Q4.]Answer this below

logical question

A. Look at this series: 0.75, 2.5, ____, 9, 17,... What number should fill the blank? a. 4.5 b. 0.05 c. 4 d. 5

Answer : 4.5

B. You have two hourglasses: one measures 4 minutes, and the other measures 7 minutes. How can you measure exactly 9 minutes?

Start both hourglasses at the same time.

When the 4 minute hourglass runs out turn it over when the 7minute hourglass runs out turn it over when the 4 minute hourglass runs out again (total 8 minutes), turn it over again when the 7minute runs out again 9 minutes have passed

Steps:

Start both (t = 0)

4 min: flip 4

7 min: flip 7

8 min: flip 4

9 min: when 7 runs out again time = 9 min

C. AMB, CLB, BKC, DJC, _____ a. EID b. CJD c. EIF d. CID

Answer : EID

5.Problem-Solving Approach:

You're working on a project, and a critical bug appears right before the release. How would you prioritize and address the issue in both the code and the tests? What tools or methods would you use to make sure the fix doesn’t introduce new problems and is thoroughly reliable?

A] My immediate action would be to assess Severity , where i check and confirm how critical a bug is , the assessment would include finding out answers like if it breaks any major functionality or cause data loss or it opens a door to a vulnerability that can cause security issue My second action would be communicate the issue to the Team and relevant Higher Ups, this is important as the team deserves to know about any Bugs or vulnerability.

Debugging and fixing : In this its important to isolate the probelm , we check recent code changes and we find out where the bug originated from we also make use of Debuggers like VSCode Debugger to inspect the problems

Applying new fix : after the issue is found we fix the bug and proceed with local testing and then perform a code review.

ReRelease and Post Release Monitoring is crucial after fixing said issue.

6.Technical Skills in Achieving Objectives:

Describe a project where you had to balance both writing code and testing it. How did you decide which aspects of the project to focus on first, and what tools or methods did you use for development and testing? Can you share an example where your testing strategy led you to uncover something unexpected in the code?

During my final year project i worked on developing a crop detection module in python where a camera would identify crops and display relevant information about the crop which was detected, we began by researching and integrating the necessary libraries like pandas and we tried

understanding model training processes and selecting appropriate datasets from kaggle. Our initial focus was on building a functional prototype and we found that the model worked reliably for common crops such as wheat and rice. For testing, we tried to validate the module with various crop samples and during this process we uncovered that certain crops which were not included in our initial datasets were either not being recognized or were misclassified as an entirely diffrent crop altogether this led us to expand and diversify our dataset and train our model futhe and improve its initial accuracy This experience really showed me how important it is to test with a wide variety of real world data and not just what you train the model on some problems only came up when we tried new or unusual crop samples like a spring onion or a red potato, by going back and forth between writing code and testing different types of crops we kept improving the module and in the end made it work much better than our first attempts.

7.Team Experience:

Imagine you're working on a software project with a team, and there's a disagreement about whether a feature should be tested manually or with automation. How would you assess the situation, and what factors would you consider in making a decision that works for both the development and testing teams?

A]I would first assess both sides and their logic , i would assess the features complexity , how frequently it changes and what risk of error does it carry, If the said feature is used often is prone to regression , id prefer automation for consistency and speed. For visual features i would prefer manual testing. i would also gather input from both sides , discuss the risk and advantages and if possible propose a compromising solution involving both parties advantages and inputs. Collaboration is key in this area so that no one feels unheard or undervalued.

8.Motivation for Software Engineer Career:

What motivates you to pursue a career as a Software Engineer? How do you see development and testing complementing each other in building high-quality products? Why do you believe having skills in both areas will make you a stronger engineer, and what steps will you take to continuously improve your technical knowledge and problem-solving abilities?

A]I am motivated to become a Software Engineer beacause i enjoy solving commonly faced issues and wanting to build something that will help people on large sacale. The basis for my motivation was always and will always be to help those around me. Being skilled in developing a software or improving my skillset in coding will allow me to progress further into my career and help me gain experience which would indirectly help me to provide a better version of my practical knowledge to the company.

9.Impact of DevOps and Cloud on Software Engineering:
With DevOps and cloud technologies becoming the foundation of modern software development, how would you approach building and maintaining software in an environment where changes are frequent and deployments are automated? What tools, engineering practices, or architectural approaches would you use to ensure system stability, code quality, and reliability of both new and existing features during rapid deployment cycles?

A]in a DevOps and cloud Driven environment id use a version control like git , and automated tests to catch issues fast and reliably.Id base the acrchitecture of the software with a modular design to isolated changes. Practicing like code review , Logging help ensure stability and quality.

10.Profile Details:

A link to a project or code that you've worked on, whether personal, academic, or professional. Can you describe a specific technical challenge you faced while working on this project, how you tackled it, and what you learned from the experience that you would apply in future development or testing tasks?

1. LinkedIn Profile Link: http://www.linkedin.com/in/anandshankar-iyer-803506228

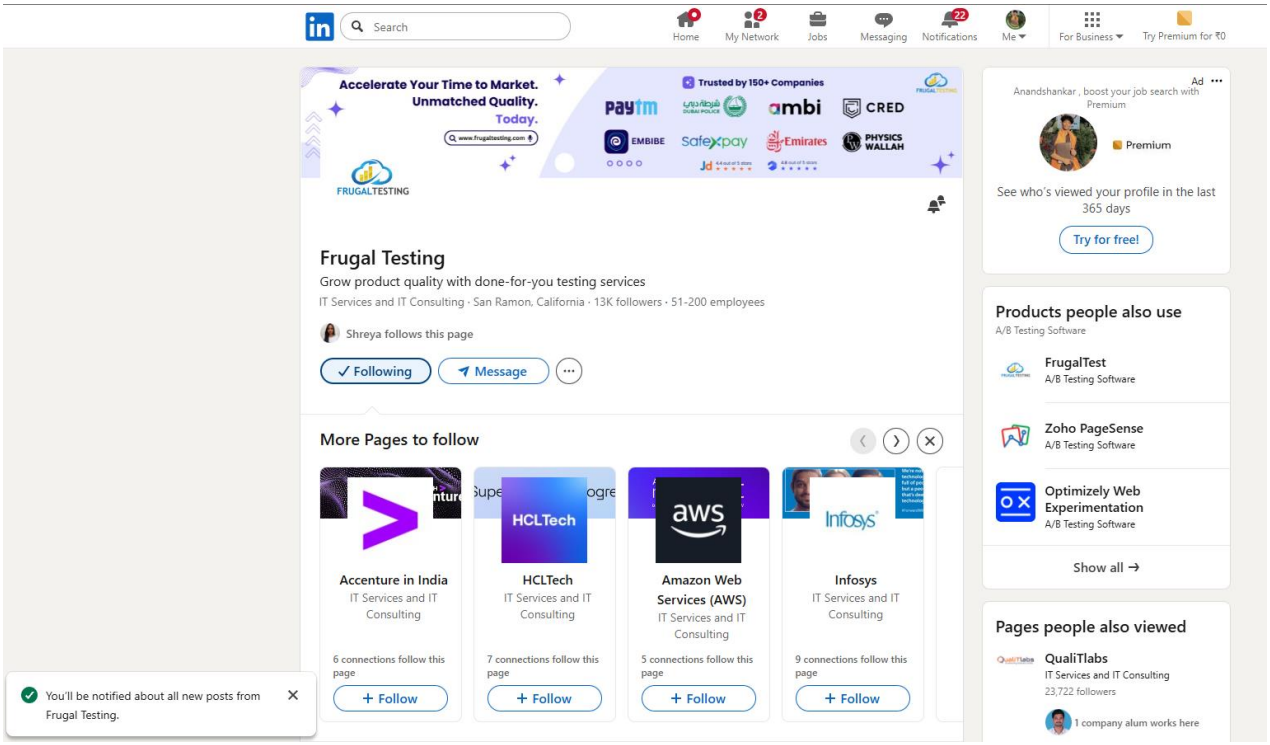
2. Resume:https://drive.google.com/file/d/1Ch-iQxEpiG2WY8OVZCdJyJL8BDna1P_7/view?usp=drive_link
3. Github Profile: https://github.com/Anand13008

4. Project links and screen recording:

https://github.com/Anand13008/Section-A-Dynamic-Quiz-Application-with-Timer-and-Result-Analysis

Screenshots of the Social Media work:
LinkedIN
FACEBOOK
Instagram
Youtube
Google Page
Whatsapp Community

LinkedIN

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Student at University of Petroleum and Energy Studies
now
Roblox has always been a nice game to play to see it incoorporated with the companys values and problem solving nature is great to see!
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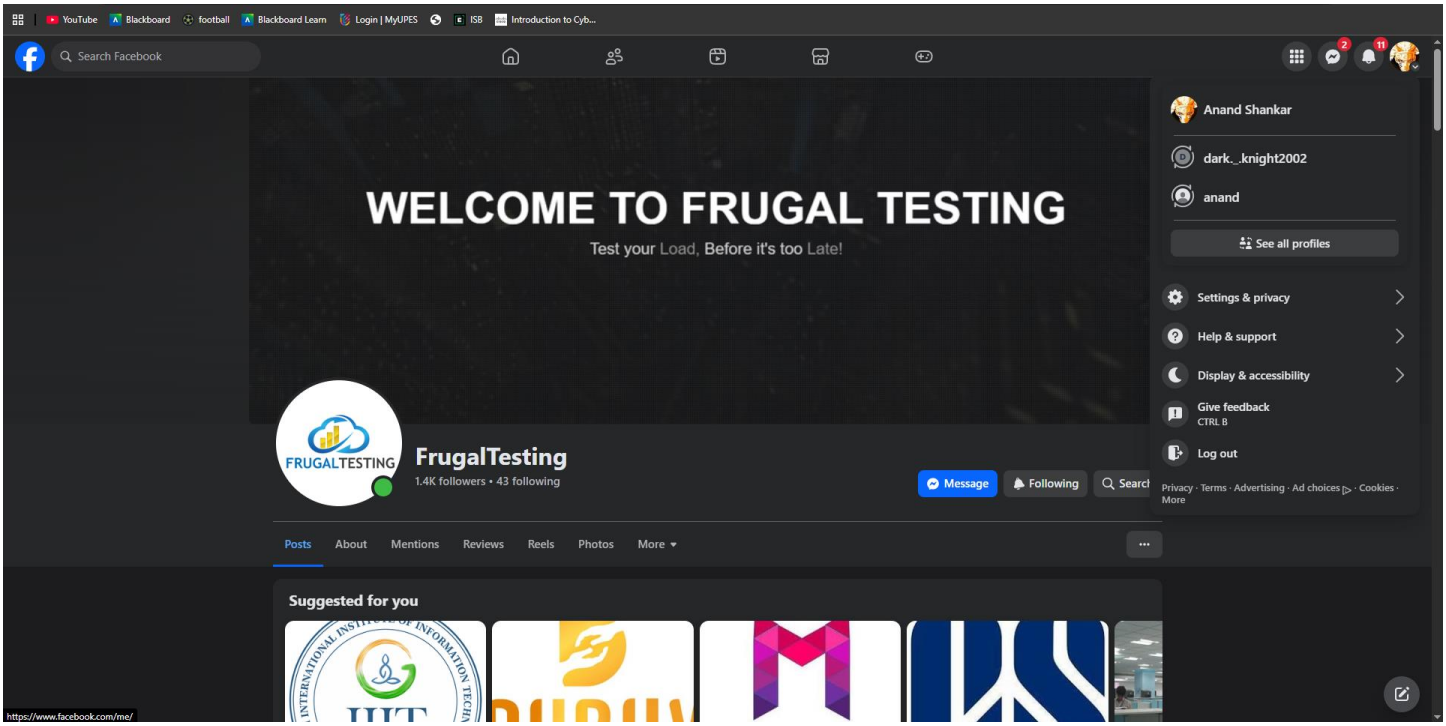
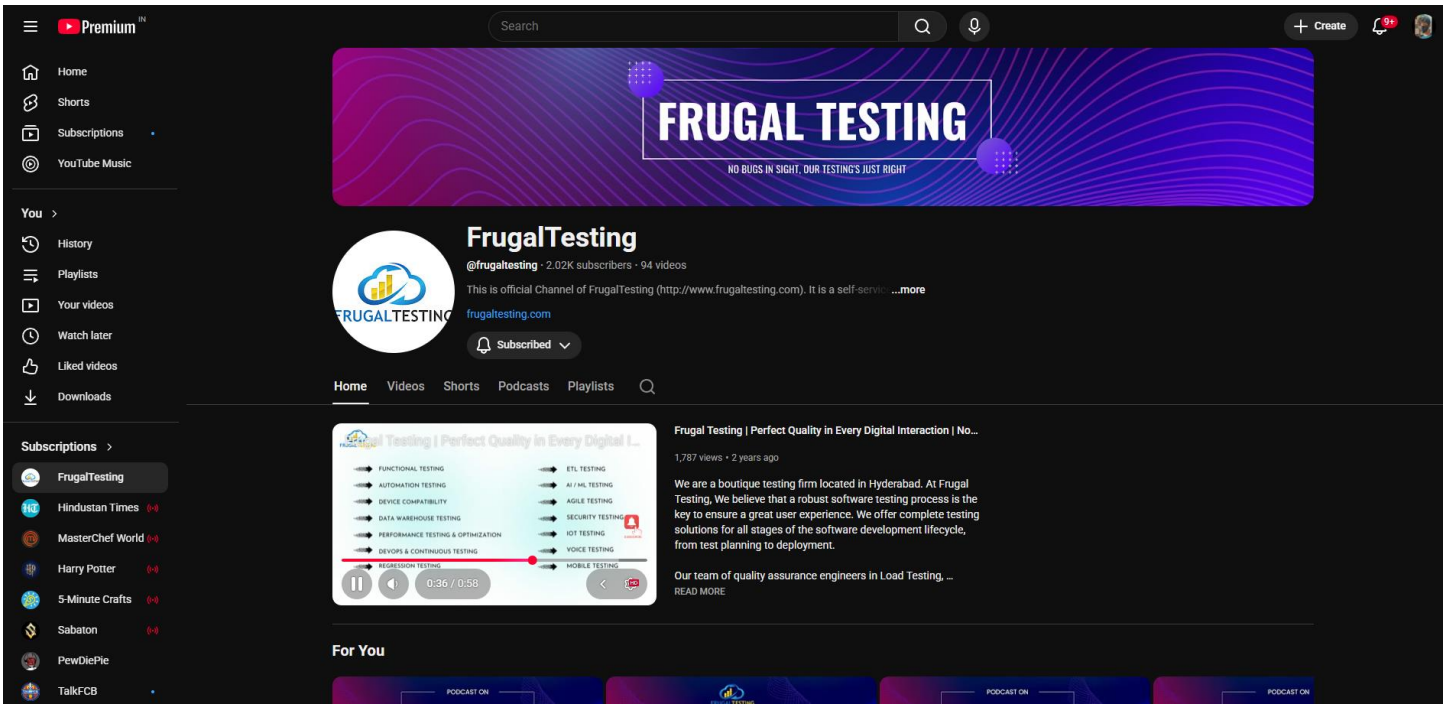


YOUTUBE



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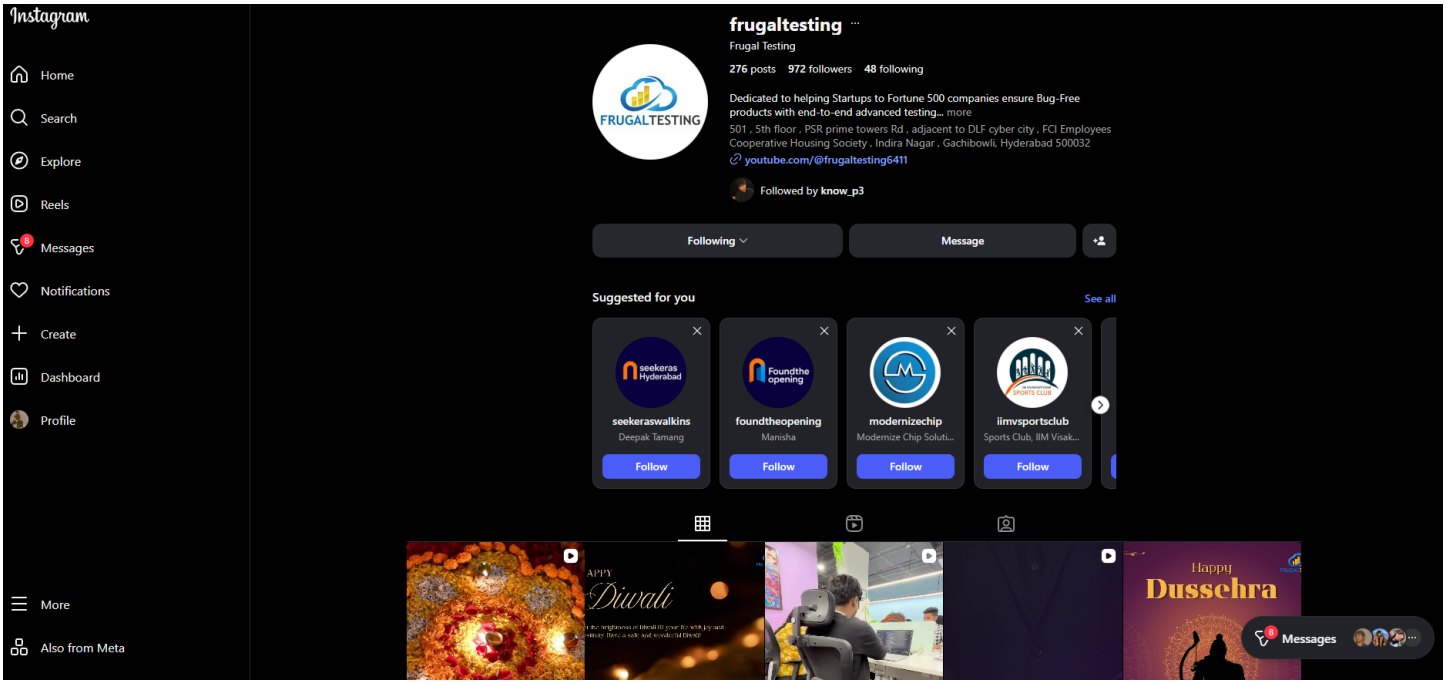
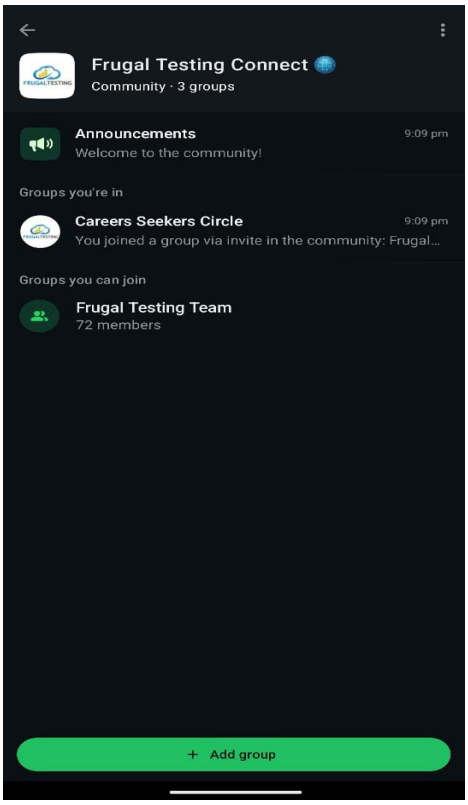
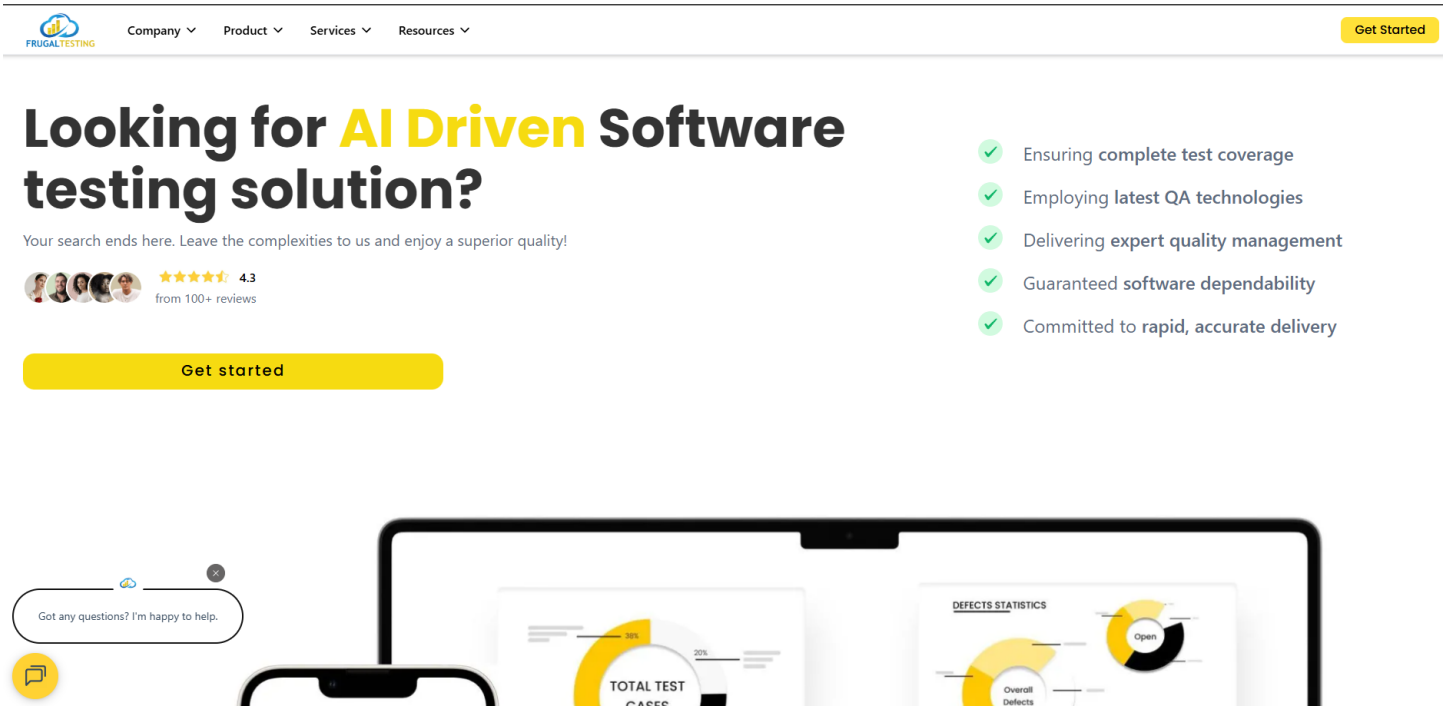


WHATSAPP COMMUNITY



GOOGLE PAGE



11.Social Media Task:
After exploring Frugal Testing's social media content, identify the most interesting or insightful piece of information you came across. How would you apply this knowledge in a practical project scenario? Do you agree or disagree with their approach to any specific testing methodology? Provide reasons to support your viewpoint.

A] one insightful point from Frugal Testings social media that ive personally noticed is their drive to use cloud based platforms for being scalable and cost effective test automation.In a practical project id use such platforms to run tests across many devices and environments without the need for a local setup, i also do agree with the company's approach to use automation for effiency. Their focus is on practical , resource light testing integrated with DevOps Practices. this why i also have understood why the company is trusted by Various Tech gaints like CRED and Paytm.

12]Using AI Tools for Problem-Solving in Software Engineering:

When working on a complex engineering issue or debugging a challenging piece of code, how would you use AI tools to assist your investigation while ensuring the guidance is accurate, secure, and aligned with your project's requirements? What risks do you see in relying too heavily on

AI-generated suggestions, and how would you maintain a healthy balance between AI assistance and your own technical judgment?

A] The growth of AI has been nothing short of Explosive and Agressive , I would personally use AI tools for looking up solutions, analyze error messages and understand how to solve complex issues.

But it needs balance , i always believe not to rely on AI for solving a complex Problem or any problem for that matter if we ourseleves cannot solve and understand it first,Thas why relyingtoo much on AI can risk introducing incompatible solutions or solutions which arent bolstered to our needs.Id always validated AI output with my own testing and reasoning.

13.Ensuring Software Quality:
What practices do you consider essential for maintaining quality throughout the development process? How do you make sure your code is validated properly through a mix of manual checks and automated tests? Can you describe a situation where a simple verification approach helped avoid a major issue or prevented a project setback?

A]Essential practices include code review, writing unit and integration testing , using static analysis tools and regular manual validation of errors i Validate code by combining automated tests and manual checks for speed and coverage. This approach ensures higher quality and catches issues early on.

14.Improving Development with AI Assistance:
While working on a new feature for an application, how would you use an AI tool to get coding suggestions, debug issues, or quickly learn unfamiliar concepts? How would you ensure that the code you produce remains clean, testable, and maintainable over time, even when using AI as part of your workflow?

A] Id use AI tools to get coding suggestions , clarify concepts and debug errors by asking specific questions and by reviewing the sample code. To keep the code clean id review and adapt AI generated code to the projects standards.Id also double check that the AI suggestions dont introduce any weird complexities.

15]15. Designing Efficient Solutions for High-Volume Data Processing

You have a large dataset that needs to be processed efficiently.

● What data structures would you choose to optimize performance?

● How would you analyze and reduce the time complexity?

● Provide an example of how you would implement and test the solution.

A] Data structures --> I would make use of arrays or lists for easier processing , dictionaries for fast lookups and sets for their uniqueness.For sorted data id use Heaps or Balaced trees

Analyzing and Reducting time complexity --> I would choose algorithms that try to minimize time complexities like using hashing for O(1) instead of O(n), and aslo would try to reduce on nested loops if possible.

Testing ---> Id create tests datasets, overall try to correct the results if there are any miscalculations or any redundancies.

16. Debugging and Problem Solving:

While developing an application, you encounter an unexpected issue that causes the application to crash. How would you approach debugging the problem? What steps would you take to isolate the issue and ensure the fix doesn’t break other parts of the application?

A]i would try to start by reviewing the error messages or any error logs that are available to identitfy where specifically the crash occours, id try to replicate the issues and try to narrow down where exactly the code is causing an misfit by using step by step execution.After finding the root cause id try implementing specific fixes for that very particular error , once that is done id run the tests again.

17. Building Scalable Features Under Constraints:

When you're developing a new feature that must support thousands or even millions of users,how do you think about scalability from the start? What factors influence your design decisions,and how do you ensure performance, reliability, and simplicity even when working under tight timelines or limited information?

A] from the start id design for scalability by choosing proper data structures trying to reduce resource usage, i would take into account the estimated load , plan for horizontal scaling and try my best to avoid bottlenecking. My design would be influenced by expected traffic and exisiting architecture.

To also ensure performance id make use of proven solutions , measure and test frequently and monitor everything to catch issues early.

18. Choosing Between Automation and Manual Work:

When working on a development project, you might encounter situations where you need to decide whether a task should be automated or done manually (e.g., testing, deployment). How would you decide which tasks to automate and which to leave for manual handling? What factors would influence your decision, and how would you ensure both approaches are executed effectively?

A] For me personally any task that is constantly needing manual work , is repetitive , time consuming or needs frequent execution will always come under the automation category to save energy time and effor any task that requires human judgement or needs creativity like building a website will come under the Manual category for me.

To ensure that both approaches are effective i would document manual steps clearly and also maintain reliable automation scripts, Balance is what is key here for mantining efficiency.

19. Collaboration and Code Reviews:

You are part of a team developing a software application. After completing your part of the code, you send it for peer review. How would you approach reviewing someone else's code? What key areas would you focus on to ensure the code is efficient, maintainable, and free of bugs?

A] when given the chance and opportunity to review someone elses code , I usually check for code logic , errors and checking for efficient functionality. I would also make the effort to looks for bugsa nd any broken parts of the code, to evaluate efficiency i would check for any unnecessary loops or over the top memory usage,

in the end if i would offer constructive feedback ask questions for parts i personally found unclear and suggest upgrades if needed.

ARTICLE

Topic : How Modern DevOps Automation Helps Develops Ship Code Faster

In todays Fast paced software world speed and quality are 2 sides of the same coin, both are expected and are to be delivered. Modern DevOps automation helps bridge the gap between quality and speed by allowing developers to deliver reliable code efficently without cutting down on quality.

What is DevOps Automation?

DevOps is a collaboration between Development (Dev) and Operations(Ops) teams, It mainly focouses on automating the entire software delivery process from code integration to final deployment. Automation is at the heart of DevOps, It commonly includes practices like Continuous integration, Continuous Delivery and Infrastructure as Code.

What is Continuous Integration, Delivery and Infrastructure as Code?

Continious Integration-

Whenever someone merges new code , automated tools like Jenkins immediately build the project and run all the tests.This helps the team spot errors or bugs early before the code goes live.It prevents big issues at the end of a project and makes sure that new changes dont break what already works.

Continious Delivery and Deployment-

Once the new code passes all its tests automated pipelines can instantly deploy updates to testing or live environments.

Tools like Docker, Kubernetes set up and run the app in a safe and consistent way no matter where its deployed.They make use of Rollbacks and Blue/Green deployments make these updates safe and less risky. Its mainly useful because teams can release new features or fixes faster.

Infrastructure as Code-

Instead of setting up servers and networks manually everything is defined in the code itself. IaC tools like Terraform let us write scripts that show how computers , storage and connections are set up.Anyone who uses this script can recreate the same set up on their own. DevOps has become an important factor in the IT industry, DevOps provides immumerous benefits like faster delivery cycles , Consistent Quality , Less Burnout and collaboration and Transparency.

- Benefits of automation -->

- 1.Automated pipeline allow teams to move from code commit ti deployment in minutes instead of days or weeks.

- 2.Automation also removes tedious repetitive tasks like manual testing, builds and evironment setups.Developers can focus on problem solving which boosts job satisfaction and creative output

- 3.With everything automated its easy to ssee where a process stands or what failed , this insight helps teams work better and learn from issuses

Conclusion

Modern DevOps automation transforms the way developers build and ship code, by automating menial and repetitive tasks which take greater effort and embedding testing into the workflow developers can ship reliable code much faster , This helps businessses respond quickly to user needs and stay ahead in the competitive landscape