## **QA AGENT – Coding Task**

### **Task Overview:**

You are required to build an **AI-powered multi-tool QA agent** that automates **end-to-end frontend test case generation, execution, and reporting** for:

* **Recruter.ai** (using its “How to” video: [YouTube](https://youtu.be/IK62Rk47aas)) Signup to that using this [link](https://www.recruter.ai/onboarding/Signup).

### **Agent Capabilities:**

🧩 **Test Case Generator Agent (RAG + LLM)**

* Given **how-to videos or help documentation**, the agent should:  
  + **Watch videos (extract transcriptions, segment steps)**
  + Read textual help docs if available.
  + Automatically generate **comprehensive frontend test cases** covering:  
    - Core user flows
    - Edge cases (boundary inputs, invalid data, network failure)
    - Cross-browser & mobile variants
    - Accessibility checks
    - Performance considerations

🧩 **Automated Test Execution Agent**

* Automatically convert generated test cases into **Playwright** test scripts.
* Execute tests against the instance of Recruter.ai.
* **Collect, parse, and display test results clearly**.

### **Prompt Template (Agent Personality):**

**You are QAgenie — a calm, thorough AI QA assistant.** Your mission is to ensure flawless user experiences on Recruter.ai.  
 You carefully read help documents and watch training videos to understand user flows, edge cases, and expected UI behaviors.  
 You automatically generate complete, accurate, and maintainable frontend test cases in Playwright.  
 You run tests systematically, capture results, and summarize findings clearly with actionable insights.  
 You never skip edge cases and always consider accessibility, cross-browser compatibility, and user error handling.  
 You escalate ambiguous flows with clear context for clarification rather than guessing.

### **Expected Deliverables:**

✅ **Dual-Agent Functionality:**

🔹 **Test Case Generator Tool**

* Uses RAG or LLM summarization on:  
  + Recruter.ai how-to video (transcribed with Whisper or YouTube transcript).
* Generates **clear, structured test cases** in:  
  + Gherkin syntax (optional)
  + Playwright-compatible test plan JSON
  + Markdown for human readability.

🔹 **Test Execution Tool**

* Converts test cases into **Playwright test scripts** automatically.
* Executes tests against a **localhost or staging environment**.
* Captures and displays results with:  
  + Pass/fail status
  + Screenshots/video on failure
  + Logs for debugging.

### **Recommended Steps:**

✅ **1. Data Ingestion:**

* Download/Transcribe the Recruter.ai how-to video.
* Chunk and vectorize using LangChain/LlamaIndex with FAISS/Chroma for semantic understanding.

✅ **2. Test Case Generation:**

* Use GPT-4o or a local LLM (LM Studio) to generate comprehensive test cases.
* Store as:  
  + JSON for programmatic conversion
  + Markdown for reference

✅ **3. Test Script Generation:**

* Create a converter to transform JSON test cases into **Playwright test scripts** automatically.

✅ **4. Test Execution:**

* Run tests locally using Playwright.
* Capture results and artifacts:  
  + Screenshots
  + Logs
  + Pass/fail summary

✅ **5. Reporting:**

* Display results on a simple Streamlit or Next.js local dashboard.
* Optionally:  
  + Email reports
  + Generate CSV/PDF exports

### **Bonus Tasks : (optional)**

🚀 **Accessibility Checks:**

* Use [axe-core/playwright](https://github.com/abhinaba-ghosh/axe-playwright) to run automated accessibility testing.

🚀 **Performance Testing:**

* Use Playwright tracing & metrics to analyze page load and interaction performance.

🚀 **Extend to CI/CD:**

* Set up GitHub Actions to run tests on each push automatically.

🚀 **Memory of Past Runs:**

* Store previous run results and compare with current runs for regression insights.

### **Method of Submission:**

Develop and test the application locally using Python + Node.js + Playwright.

📦 **Submission Checklist:** ✅ GitHub repo named: QAAgent Task – <Your Name>

✅ Email to:

santosh@personaliz.ai

cc: sasidharsunkesula579@gmail.com

with the subject: QA AGENT Task – <Your Name>

✅ Include:

* GitHub repo link
* Demo recording video as you speak and explain the following:  
  + Test case generation
  + Playwright test execution
  + Result display
  + Your approach and code overview.
* Latest resume

### **ALL THE BEST!**

We are excited to see how you leverage LLMs + Playwright + automation to build a **robust, maintainable AI QA agent for production-grade SaaS testing pipelines.**