STEPS FOR FINE TUNING A MODEL

1.)Setting up the paths for input and output in java convertor file

```java
public class TrainingDataConverter {
    public static JSONObject createJsonLine(String html, String java) {
        JSONObject jsonObj = new JSONObject();
        JSONArray messages = new JSONArray();

        messages.put(new JSONObject().put("role", "system").put("content", systemMessage));
        messages.put(new JSONObject().put("role", "user").put("content", userMessage));
        messages.put(new JSONObject().put("role", "assistant").put("content", java));

        jsonObj.put("messages", messages);

        return jsonObj;
    }

    Run | Debug
    public static void main(String[] args) {
        // Adjusted paths to match your specific locations
        String inputDir = "C:\\Users\\BidaveAshlesha\\OneDrive - thyssenkrupp Materials Services GmbH\\Desktop\\AI\\Gen AI\\training\\training";
        String outputFile = "C:\\Users\\BidaveAshlesha\\OneDrive - thyssenkrupp Materials Services GmbH\\Desktop\\AI\\Gen AI\\training\\training_data_chat.jsonl";

        try (DirectoryStream<Path> stream = Files.newDirectoryStream(Paths.get(inputDir), glob: "*.txt");
             BufferedWriter writer = Files.newBufferedWriter(Paths.get(outputFile),
                     StandardCharsets.UTF_8, StandardOpenOption.CREATE, StandardOpenOption.APPEND)) {

            for (Path inputFile : stream) {
                try {
                    ParseResult result = parseExample(inputFile);
                    JSONObject jsonObj = createJsonLine(result.html, result.java);
                    writer.write(jsonObj.toString());
                    writer.newLine();
                    System.out.println("Processed " + inputFile.getFileName());
                } catch (IllegalArgumentException e) {
                    System.out.println("Skipping " + inputFile.getFileName() + ": " + e.getMessage());
                } catch (IOException e) {
                    System.out.println("Error processing " + inputFile.getFileName() + ": " + e.getMessage());
                }
```

2.) Created create lead page

Name	Status	Date modified	Type	Size
CreateLeadPage		5/28/2026 1:58 AM	TXT File	2 KB
EditLeadPage		5/27/2026 10:19 AM	TXT File	2 KB
FindLeadsPage		5/27/2026 10:19 AM	TXT File	3 KB
FindLeadsUpdated		5/27/2026 10:19 AM	TXT File	3 KB
HomePage		5/27/2026 10:19 AM	TXT File	2 KB
Login		5/27/2026 10:19 AM	TXT File	2 KB
MyHomePage		5/27/2026 10:19 AM	TXT File	1 KB
MyLeadsPage		5/27/2026 10:19 AM	TXT File	2 KB
OrderEntryHeaderPage		5/27/2026 10:19 AM	TXT File	5 KB
UploadPage		5/27/2026 10:19 AM	TXT File	2 KB
ViewLeadPage		5/27/2026 10:19 AM	TXT File	3 KB

3.) Run the program

```java
public class TrainingDataConverter {
    public static JSONObject createJsonLine(String html, String java) {
        JSONObject jsonObj = new JSONObject();
        JSONArray messages = new JSONArray();

        messages.put(new JSONObject().put("role", "system").put("content", systemMessage));
        messages.put(new JSONObject().put("role", "user").put("content", userMessage));
        messages.put(new JSONObject().put("role", "assistant").put("content", java));

        jsonObj.put("messages", messages);

        return jsonObj;
    }

    Run | Debug
    public static void main(String[] args) {
        // Adjusted paths to match your specific locations
        String inputDir = "C:\\Users\\BidaveAshlesha\\OneDrive - thyssenkrupp Materials Services GmbH\\Desktop\\AI\\Gen AI\\training\\training";
        String outputFile = "C:\\Users\\BidaveAshlesha\\OneDrive - thyssenkrupp Materials Services GmbH\\Desktop\\AI\\Gen AI\\training\\training_data_chat.jsonl";

        try (DirectoryStream<Path> stream = Files.newDirectoryStream(Paths.get(inputDir), glob: "*.txt");
             BufferedWriter writer = Files.newBufferedWriter(Paths.get(outputFile),
                     StandardCharsets.UTF_8, StandardOpenOption.CREATE, StandardOpenOption.APPEND)) {

            for (Path inputFile : stream) {
                try {
                    ParseResult result = parseExample(inputFile);
                    JSONObject jsonObj = createJsonLine(result.html, result.java);
                    writer.write(jsonObj.toString());
                    writer.newLine();
                    System.out.println("Processed " + inputFile.getFileName());
                } catch (IllegalArgumentException e) {
                    System.out.println("Skipping " + inputFile.getFileName() + ": " + e.getMessage());
                } catch (IOException e) {
                    System.out.println("Error processing " + inputFile.getFileName() + ": " + e.getMessage());
                }
            }
```

```
PS C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps>  c:; cd 'c:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps'; & 'C:\Sof
re\jdk-20.0.2\bin\java.exe' '@C:\Users\BIDAVE~1\AppData\Local\Temp\cp_7r17168gckgrpg62ofjlbqkrh.argfile' 'com.framework.converter.TrainingDataConverter'
Conversion complete. Output saved to: C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\training\training_data_chat.jsonl
PS C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps>  c:; cd 'c:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps'; & 'C:\Sof
re\jdk-20.0.2\bin\java.exe' '@C:\Users\BIDAVE~1\AppData\Local\Temp\cp_7r17168gckgrpg62ofjlbqkrh.argfile' 'com.framework.converter.TrainingDataConverter'
Processed EditLeadPage.txt
Processed FindLeadsPage.txt
Processed FindLeadsUpdated.txt
Processed HomePage.txt
Processed Login.txt
Processed MyHomePage.txt
Processed MyLeadsPage.txt
Processed OrderEntryHeaderPage.txt
Processed UploadPage.txt
Processed ViewLeadPage.txt
Conversion complete. Output saved to: C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\training\training_data_chat.jsonl
PS C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps>  c:; cd 'c:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\leaftaps\leaftaps'; & 'C:\Sof
re\jdk-20.0.2\bin\java.exe' '@C:\Users\BIDAVE~1\AppData\Local\Temp\cp_7r17168gckgrpg62ofjlbqkrh.argfile' 'com.framework.converter.TrainingDataConverter'
Processed CreateLeadPage.txt
Processed EditLeadPage.txt
Processed FindLeadsPage.txt
Processed FindLeadsUpdated.txt
Processed HomePage.txt
Processed Login.txt
Processed MyHomePage.txt
Processed MyLeadsPage.txt
Processed OrderEntryHeaderPage.txt
Processed UploadPage.txt
Processed ViewLeadPage.txt
Conversion complete. Output saved to: C:\Users\BidaveAshlesha\OneDrive - thyssenkrupp Materials Services GmbH\Desktop\AI\Gen AI\training\training_data_chat.jsonl
```

4.) jsonl file is created


```jsonl
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper
```


5.) Beautify the create lead page from llm

beautify the json

{"messages":[{"role":"system","content":"You are an expert in generating Selenium Java page object classes using provided DOM information. Follow the framework's guidelines: use SeleniumBase wrapper methods, proper locators, and insert TODO comments if a mapping is missing. Make sure every page method includes comments in your generated code as the training examples may not have comments"},{"role":"user","content":"Given the following DOM structure:\n html\n<input type=\"text\" class=\"inputBox\" name=\"firstName\" size=\"30\" maxlength=\"100\"

Show more

JSON

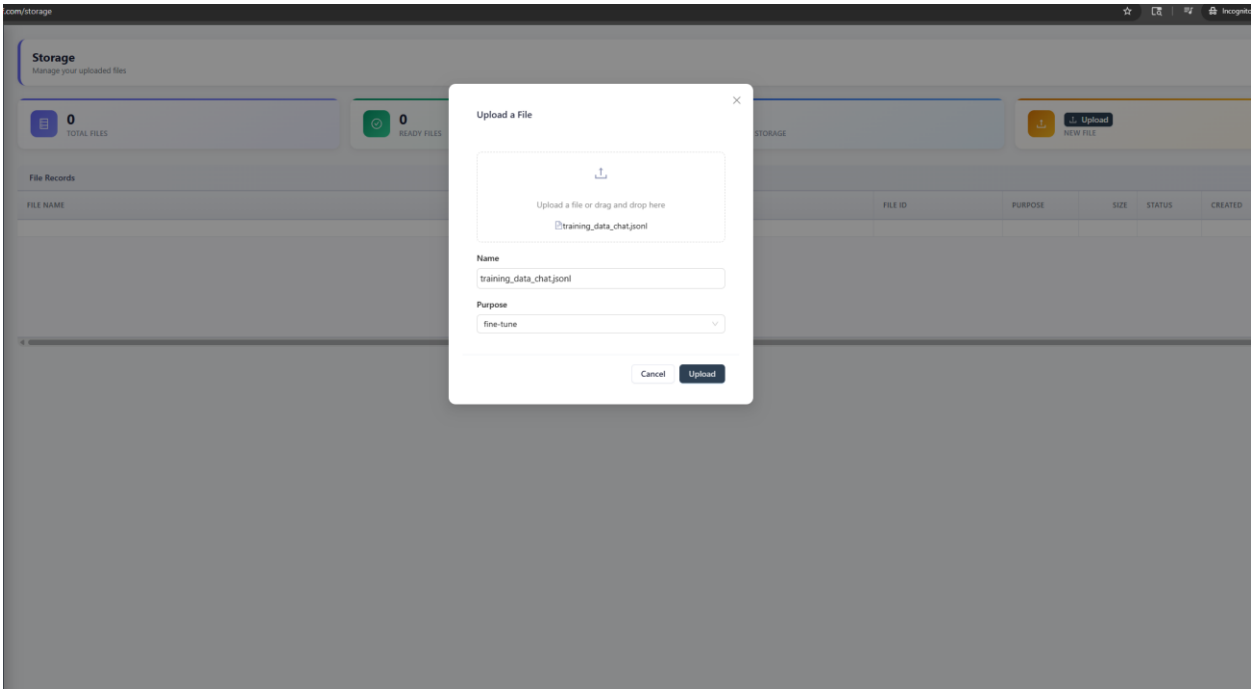

```
{
  "messages": [
    {
      "role": "system",
      "content": "You are an expert in generating Selenium Java page object classes using provided DOM informat
    },
    {
      "role": "user",
      "content": "Given the following DOM structure:\n```html\n<input type=\"text\" class=\"inputBox\" name=\"f
    },
    {
      "role": "assistant",
      "content": "package com.leaftaps.pages;\n\nimport com.framework.selenium.api.design.Locators;\nimport com
    }
  ]
}
```

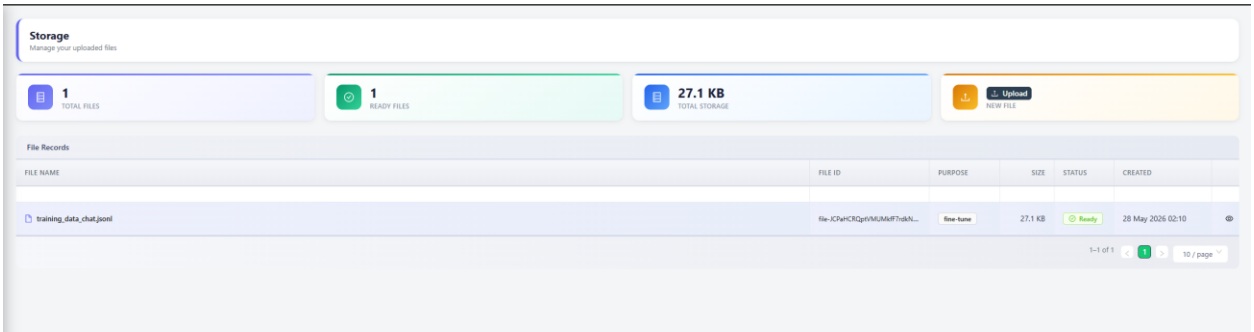

Ask anything

Voice

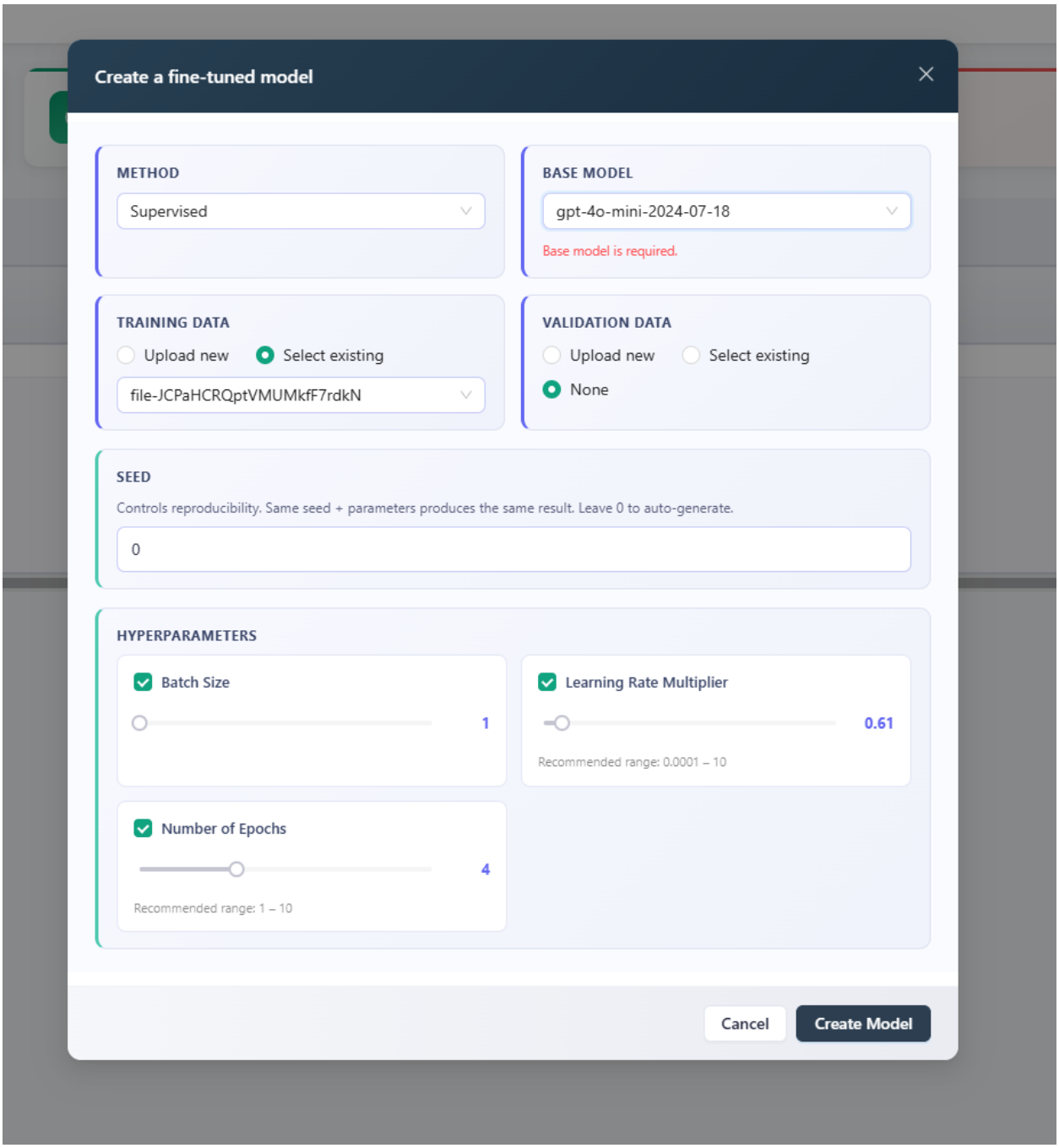
ChatGPT can make mistakes. Check important info.

6.) Logged into the testleaf.api > stored the jsonl file create in step 4

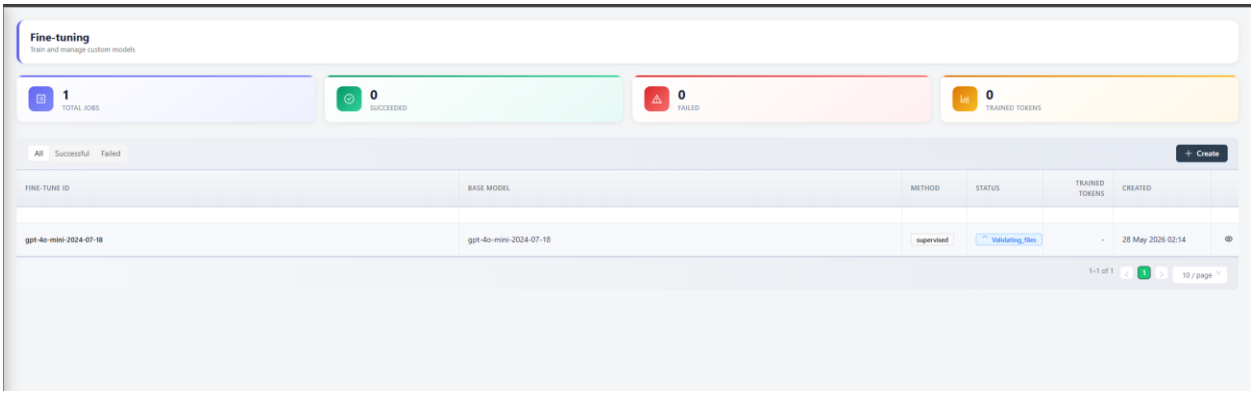


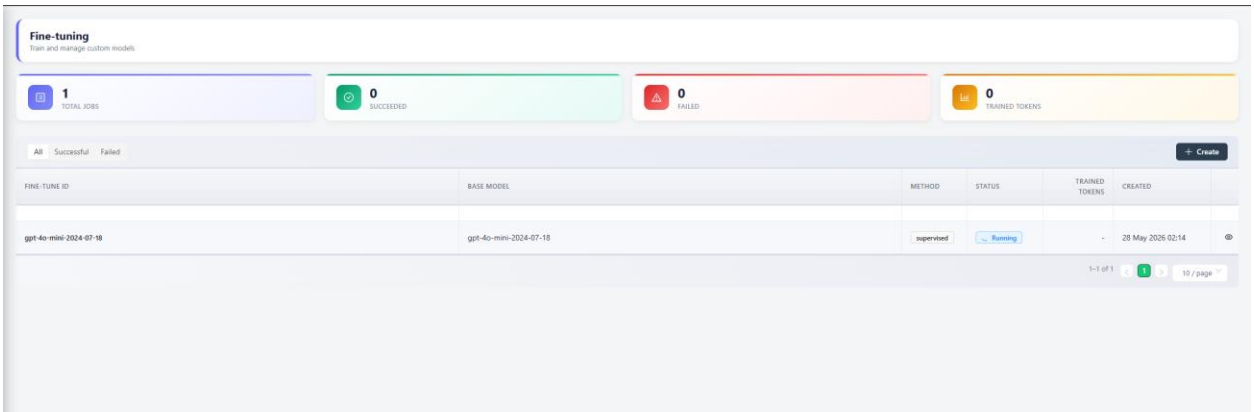


7.) Creating a Fine tuned Model

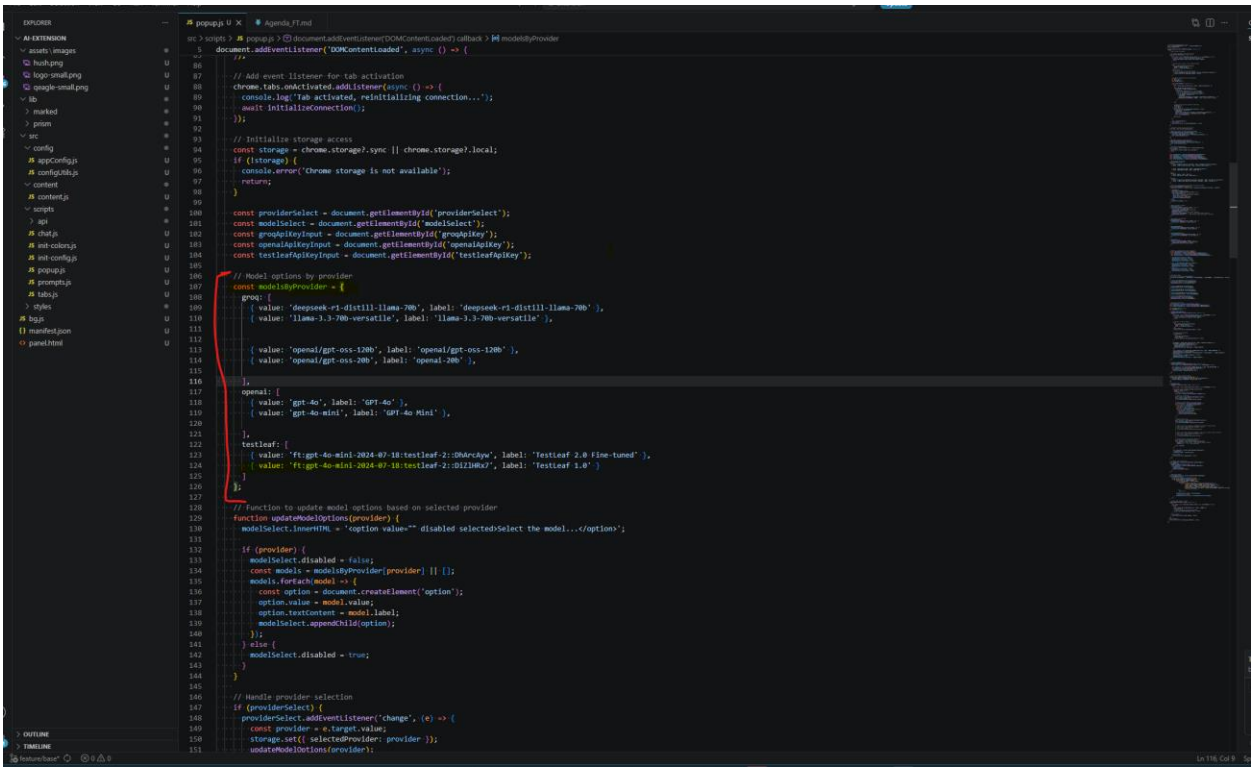


8.) Fining tuning process kickstarted

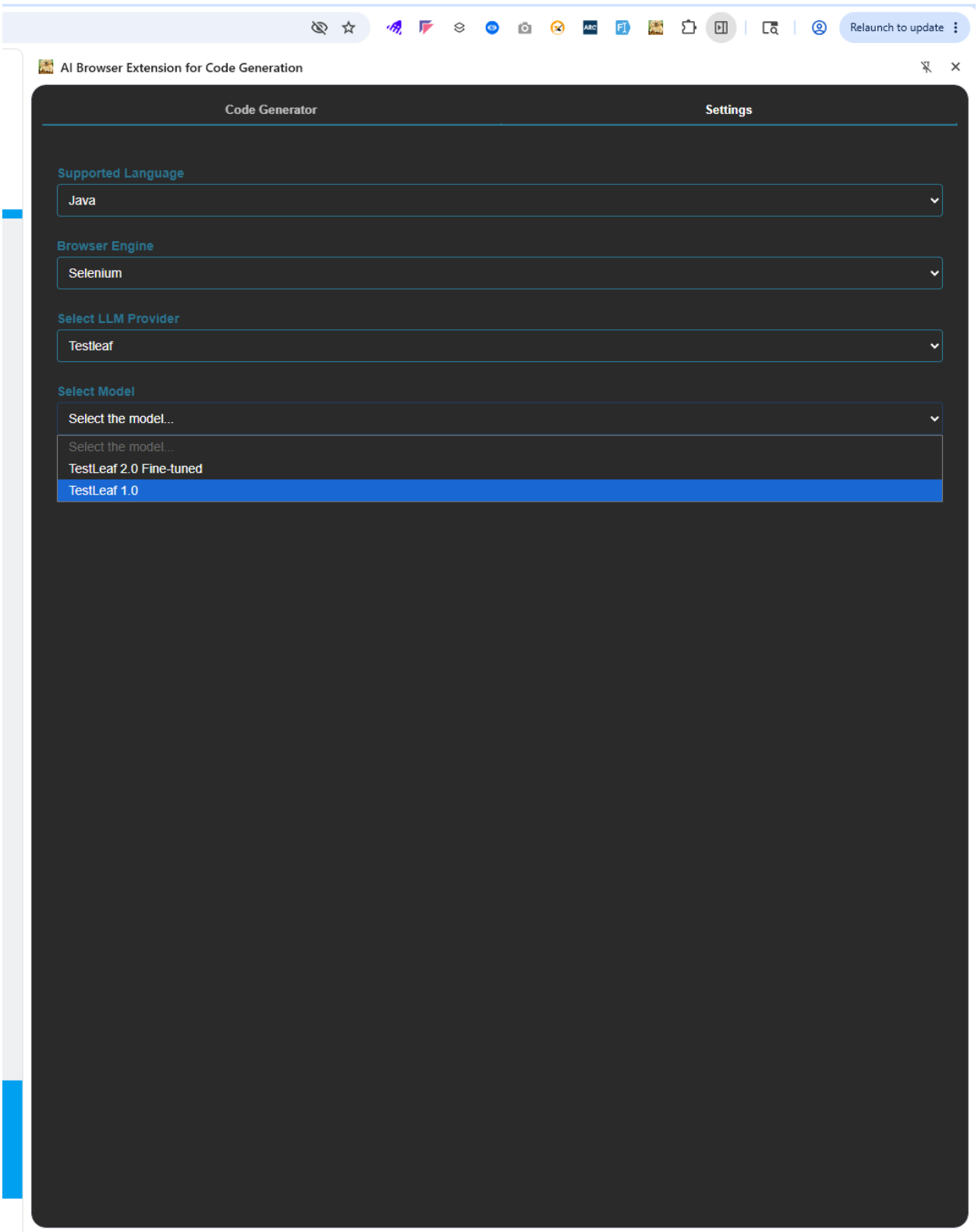


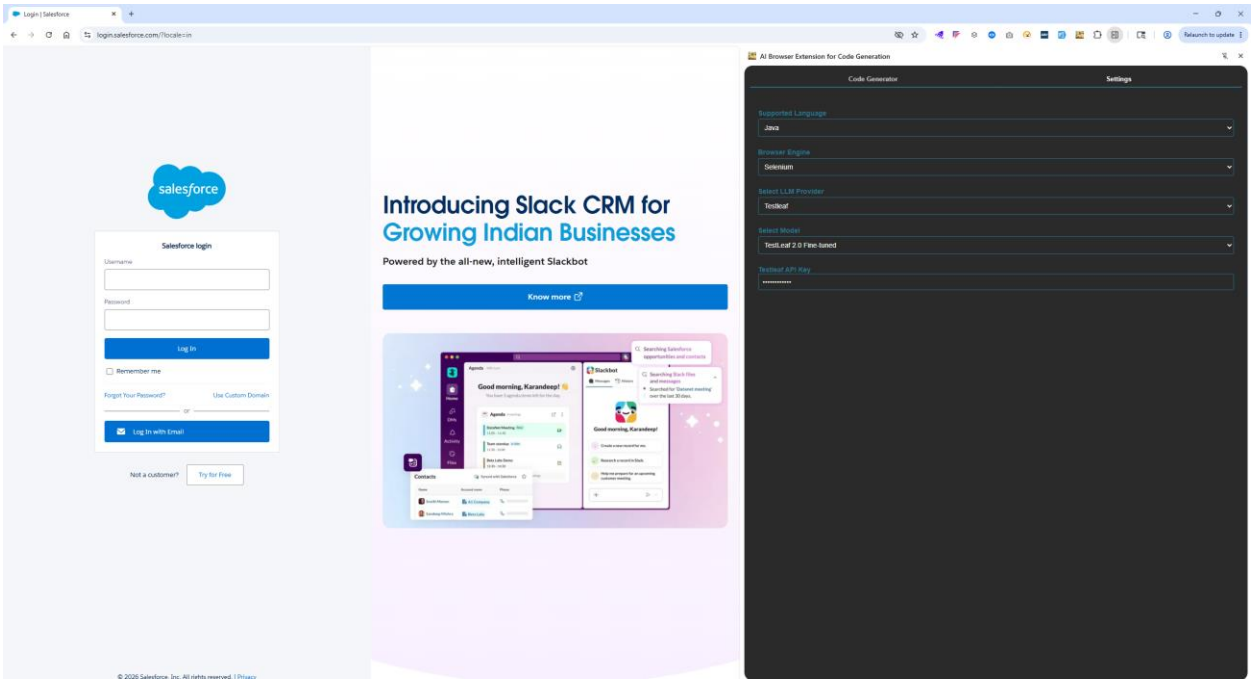


9.) Modified the model in browser extension

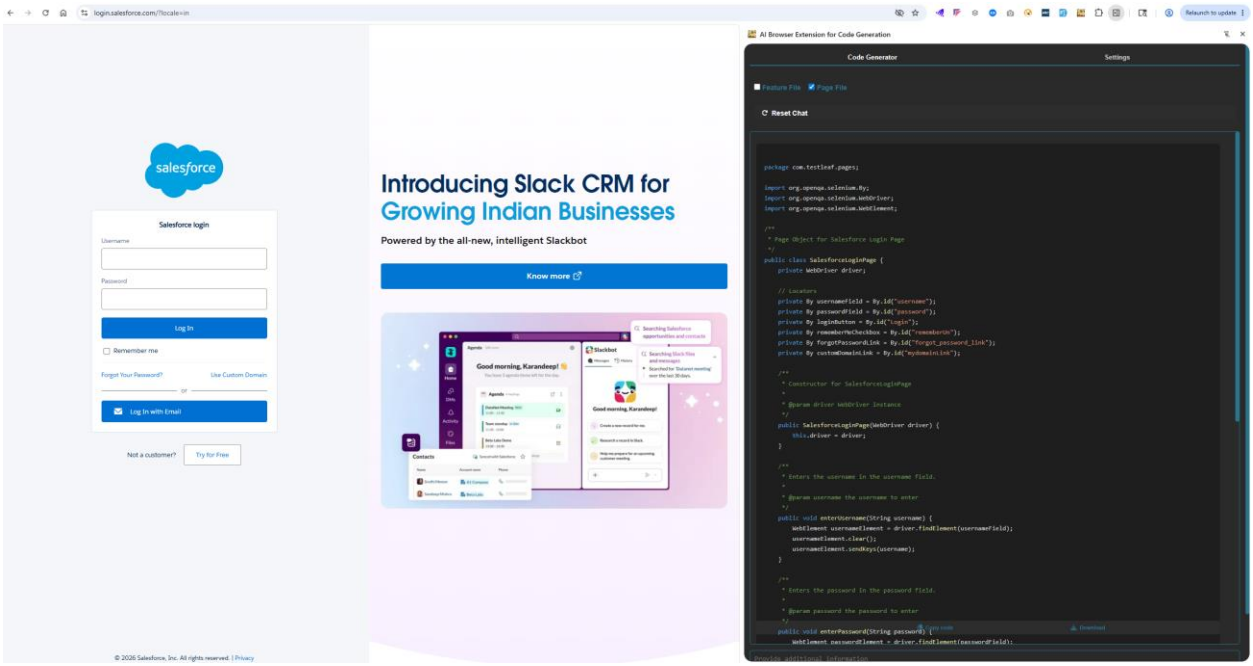


10.) Chrome extension


Relaunch to update
AI Browser Extension for Code Generation
Code Generator
Settings
Supported Language
Java
Browser Engine
Selenium
Select LLM Provider
Testleaf
Select Model
Select the model...
Select the model...
TestLeaf 2.0 Fine-tuned
TestLeaf 1.0



11.) Page file is generated



package com.testleaf.pages;

import org.openqa.selenium.By;

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;

/**
 * Page Object for Salesforce Login Page
 */
public class SalesforceLoginPage {
    private WebDriver driver;

    // Locators
    private By usernameField = By.id("username");
    private By passwordField = By.id("password");
    private By loginButton = By.id("Login");
    private By rememberMeCheckbox = By.id("rememberUn");
    private By forgotPasswordLink = By.id("forgot_password_link");
    private By customDomainLink = By.id("mydomainLink");

    /**
     * Constructor for SalesforceLoginPage
     *
     * @param driver WebDriver instance
     */
    public SalesforceLoginPage(WebDriver driver) {
        this.driver = driver;
    }

    /**
```

```
 * Enters the username in the username field.
 *
 * @param username the username to enter
 */
public void enterUsername(String username) {
    WebElement usernameElement = driver.findElement(usernameField);
    usernameElement.clear();
    usernameElement.sendKeys(username);
}

/**
 * Enters the password in the password field.
 *
 * @param password the password to enter
 */
public void enterPassword(String password) {
    WebElement passwordElement = driver.findElement(passwordField);
    passwordElement.clear();
    passwordElement.sendKeys(password);
}

/**
 * Clicks the login button to submit the login form.
 */
public void clickLoginButton() {
    driver.findElement(loginButton).click();
}
```

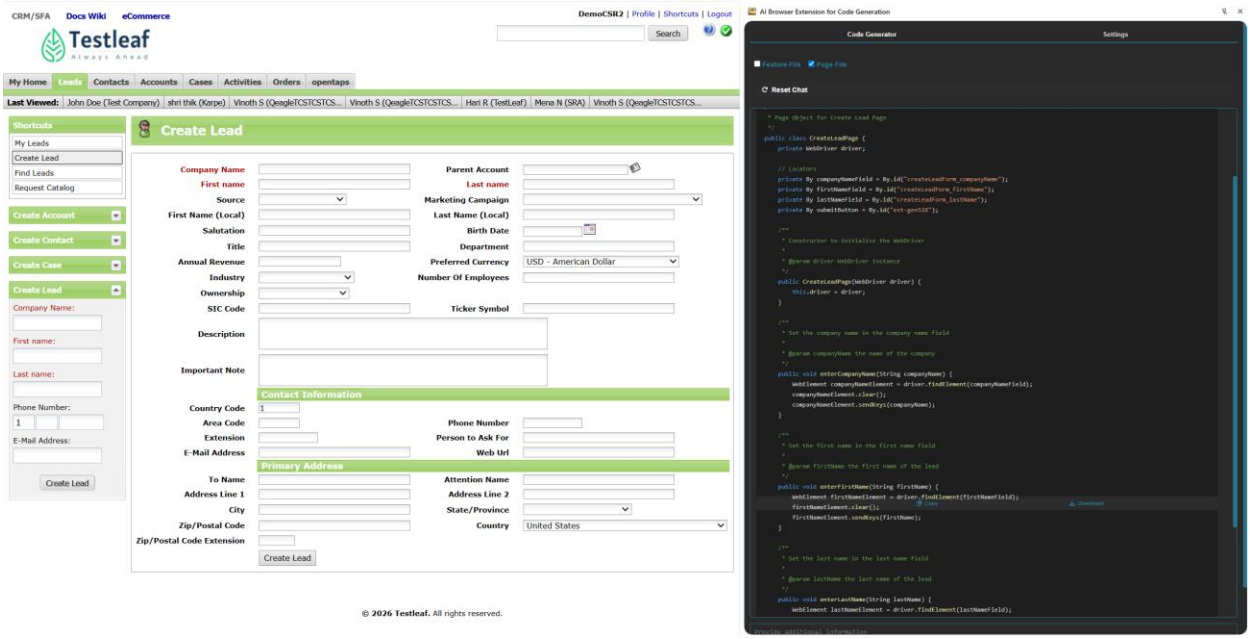
```
/**
 * Checks or unchecks the "Remember me" checkbox.
 *
 * @param remember true to check the checkbox, false to uncheck
 */
public void setRememberMe(boolean remember) {
    WebElement checkbox = driver.findElement(rememberMeCheckbox);
    if (checkbox.isSelected() != remember) {
        checkbox.click();
    }
}

/**
 * Clicks the "Forgot Your Password?" link.
 */
public void clickForgotPasswordLink() {
    driver.findElement(forgotPasswordLink).click();
}

/**
 * Clicks the "Use Custom Domain" link.
 */
public void clickCustomDomainLink() {
    driver.findElement(customDomainLink).click();
}
```

}

12.) Also tried for create lead




```
package com.testleaf.pages;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;

/**
 * Page Object for Create Lead Page
 */
public class CreateLeadPage {
    private WebDriver driver;

    // Locators
    private By companyNameField = By.id("createLeadForm_companyName");
```

```
    private By firstNameField = By.id("createLeadForm_firstName");
    private By lastNameField = By.id("createLeadForm_lastName");
    private By submitButton = By.id("ext-gen528");

    /**
     * Constructor to initialize the WebDriver
     *
     * @param driver WebDriver instance
     */
    public CreateLeadPage(WebDriver driver) {
        this.driver = driver;
    }

    /**
     * Set the company name in the company name field
     *
     * @param companyName the name of the company
     */
    public void enterCompanyName(String companyName) {
        WebElement companyNameElement =
driver.findElement(companyNameField);
        companyNameElement.clear();
        companyNameElement.sendKeys(companyName);
    }

    /**
     * Set the first name in the first name field
```

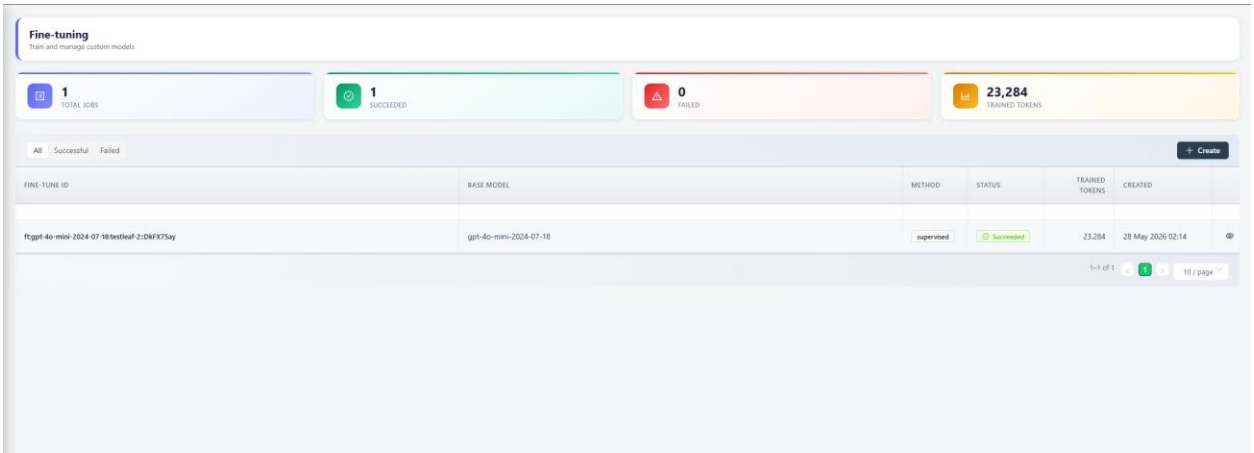
```
 *
 * @param firstName the first name of the lead
 */
public void enterFirstName(String firstName) {
    WebElement firstNameElement = driver.findElement(firstNameField);
    firstNameElement.clear();
    firstNameElement.sendKeys(firstName);
}

/**
 * Set the last name in the last name field
 *
 * @param lastName the last name of the lead
 */
public void enterLastName(String lastName) {
    WebElement lastNameElement = driver.findElement(lastNameField);
    lastNameElement.clear();
    lastNameElement.sendKeys(lastName);
}

/**
 * Click the submit button to create the lead
 */
public void clickSubmitButton() {
    WebElement submitButtonElement = driver.findElement(submitButton);
    submitButtonElement.click();
}
```

}

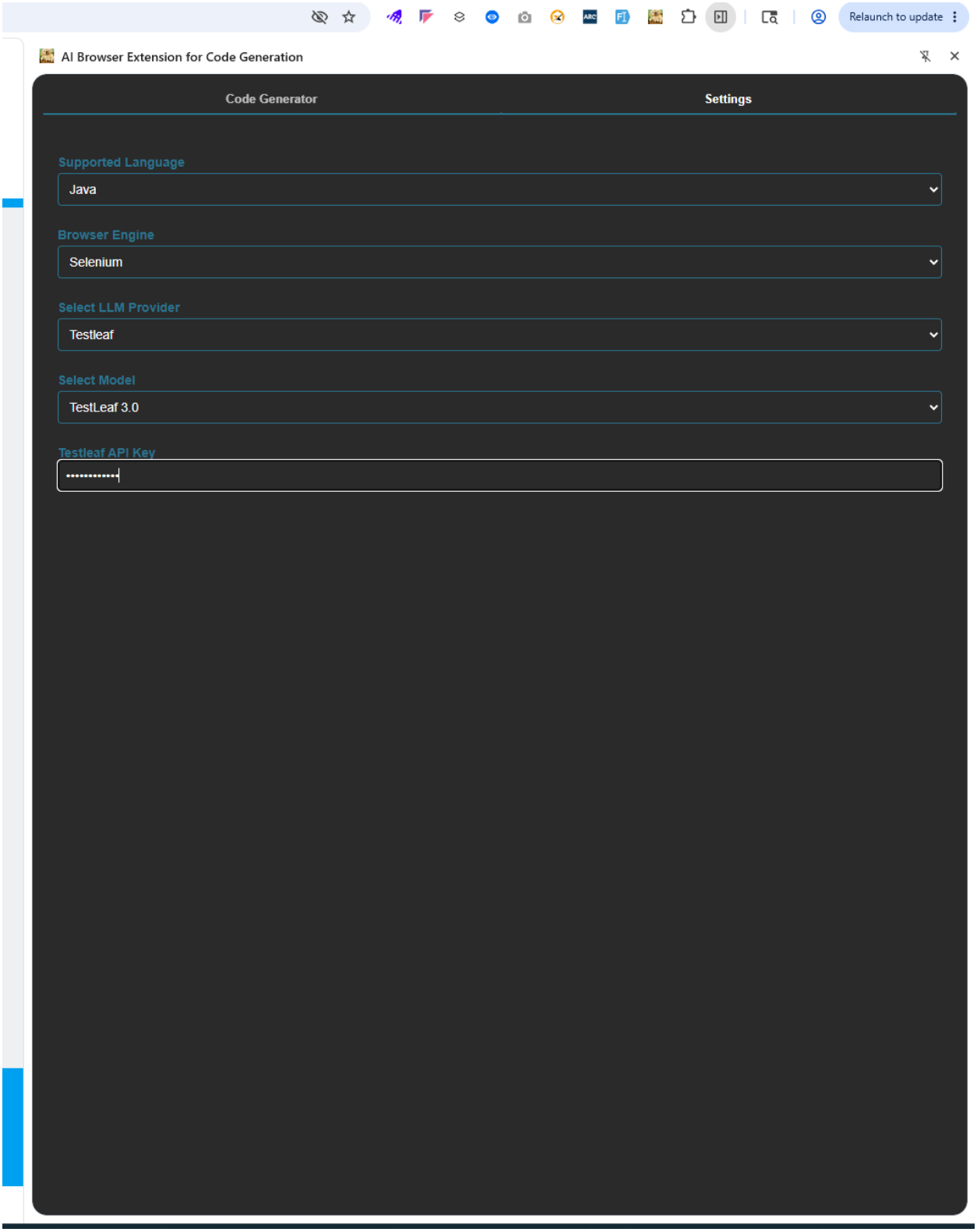
13.) Fine Tuned Succeeded



14.) updated in pop up json

popup.js 1, U Agenda_FT.md

src > scripts > popup.js > document.addEventListener('DOMContentLoaded') callback > updateModelOptions

```
5   document.addEventListener('DOMContentLoaded', async () => {
96      console.error('Chrome storage is not available');
97      return;
98    }
99
100   const providerSelect = document.getElementById('providerSelect');
101   const modelSelect = document.getElementById('modelSelect');
102   const groqApiKeyInput = document.getElementById('groqApiKey');
103   const openaiApiKeyInput = document.getElementById('openaiApiKey');
104   const testleafApiKeyInput = document.getElementById('testleafApiKey');
105
106   // Model options by provider
107   const modelsByProvider = {
108     groq: [
109       { value: 'deepseek-r1-distill-llama-70b', label: 'deepseek-r1-distill-llama-70b' },
110       { value: 'llama-3.3-70b-versatile', label: 'llama-3.3-70b-versatile' },
111
112
113       { value: 'openai/gpt-oss-120b', label: 'openai/gpt-oss-120b' },
114       { value: 'openai/gpt-oss-20b', label: 'openai-20b' },
115
116     ],
117     openai: [
118       { value: 'gpt-4o', label: 'GPT-4o' },
119       { value: 'gpt-4o-mini', label: 'GPT-4o Mini' },
120
121     ],
122     testleaf: [
123       { value: 'ft:gpt-4o-mini-2024-07-18:testleaf-2::DhArcAyw', label: 'TestLeaf 2.0 Fine-tuned' },
124       { value: 'ft:gpt-4o-mini-2024-07-18:testleaf-2::DiZlHRx7', label: 'TestLeaf 1.0' }
125       { value: 'ft:gpt-4o-mini-2024-07-18:testleaf-2::DkFX75ay', label: 'TestLeaf 3.0' }
126     ]
127   };
128
129   // Function to update model options based on selected provider
130   function updateModelOptions(provider) {
131     modelSelect.innerHTML = '<option value="" disabled selected>Select the model...</option>';
132
133     if (provider) {
134       modelSelect.disabled = false;
135       const models = modelsByProvider[provider] || [];
136       models.forEach(model => {
137         const option = document.createElement('option');
138         option.value = model.value;
139         option.textContent = model.label;
140         modelSelect.appendChild(option);
141       });
142     } else {
143       modelSelect.disabled = true;
144     }
145   }
146
147   // Handle provider selection
148   if (providerSelect) {
149     providerSelect.addEventListener('change', (e) => {
150       const provider = e.target.value;
151       storage.set({ selectedProvider: provider });
152       updateModelOptions(provider);
153       modelSelect.value = '';  // Reset model selection
154       storage.set({ selectedModel: '' });  // Clear stored model selection
155       updateApiKeyVisibility('');  // Hide API key inputs until model is selected
156     });
157   }
158
159   // Save API keys when entered
160   if (groqApiKeyInput) {
161     groqApiKeyInput.addEventListener('change', (e) => {
```

15.) 3.0 Model is displayed in ai extension