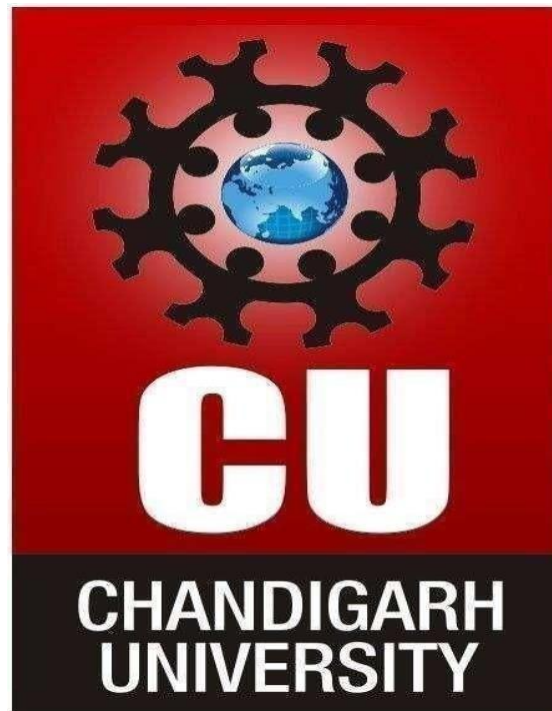


Project Report: Combine Manual and Automation Testing



**Student Name: ANUJ
MCA(AIML)**

Semester: 2

Subject Name: SOFTWARE TESTING

**UID: 24MCI10020 Branch:
Section/Group: 3/A**

Date of Performance: 17-04-2025

Subject Code: 24CAH-654

1. Introduction

Software testing is a crucial phase of the Software Development Life Cycle (SDLC) that ensures the quality and reliability of software products. This project combines both **manual testing** and **automation testing** approaches to test the **Graphical User Interface (GUI)** and functional aspects of a real-world application — the **World Health Organization (WHO) website and Fitness Tracker an API**.

2. Aim

To design, implement, and execute both manual and automation test cases to verify the functionality, usability, and responsiveness of a web-based application (<https://www.who.int/>) and Fitness Tracker an API.

3. Objective

- Ensure consistency in the UI layout across various devices.
- Validate element alignment, input fields, buttons, links, and navigation.
- Identify visual or functional defects using **manual testing**.
- Use **automation tools** to improve the accuracy and speed of regression testing.

4. Programming Language & Tools Used

Manual Testing:

- Tools: Browser, JIRA (for bug tracking), Excel (for test case documentation)

Automation Testing:

- **Tool Used:** Katalon Recorder
- **Technology:** HTML DOM-based UI testing through record and playback
- **Scripts Executed in:** Google Chrome browser

5. Implementation

Manual Testing Table:

TEST CASE 1: VERIFY THE ALIGNMENT OF UI ELEMENTS

Test Case ID	Title	Description	Steps to Execute	Expected Result	Actual Result	Status
TC001(a)	Verify Home Page Load	Ensure the homepage loads successfully within 5 seconds	Open browser, navigate to https://www.who.int/	Homepage should load with all elements visible	Homepage loads correctly	PASS
TC001(b)	Alignment of UI elements	Ensure elements are aligned properly	Navigate to homepage and visually inspect UI layout	UI elements should be aligned correctly	UI elements are aligned	PASS
TC001(c)	Resolution adaptation	UI elements should adjust properly across screen resolutions	Test on different screen sizes (desktop/mobile/tablet)	Elements adjust correctly	All elements adapt well	PASS
TC001(d)	Proper positioning	Components should not overlap or have excessive blank spaces	Inspect layout on standard view	Proper spacing and positioning	All elements positioned correctly	PASS

TEST CASE 2: CHECK COLOR CONSISTENCY OF ELEMENTS

TC002(a)	Color matching with design specs	Check if UI element colors match design	Open homepage, compare color of elements with mockup	Colors match design specs	Color mismatch observed	FAIL
TC002(b)	Consistency across platforms	Verify color rendering across browsers	Open site in multiple browsers	Colors should be consistent	Colors consistent	PASS
TC002(c)	State-based consistency	Check color on hover/focus	Hover/click buttons, observe color change	Correct statebased color implementation	Hover states work correctly	PASS

TEST CASE 3: VALIDATE BUTTON FUNCTIONALITY

TC003(a)	Action on click	Ensure all buttons trigger correct actions	Click all buttons on site	Buttons trigger expected actions	All working correctly	PASS
TC003(b)	No errors or delays	Button actions are prompt	Click buttons repeatedly	No 404s or delays	Some delays observed	FAIL
TC003(c)	Feedback	Visual feedback on interaction	Hover or click buttons	See hover effect or animation	Feedback works as intended	PASS

TEST CASE 4: TEST THE RESPONSIVENESS OF THE WEBSITE

TC004(a)	Responsive design	Layout should adapt on different devices	Open site on various devices	Layout adjusts properly	Responsive across devices	PASS
TC004(b)	Layout consistency	Elements resize and adjust without overlap	View on multiple resolutions	No distortion or overlaps	Layout consistent	PASS
TC004(c)	UI component repositioning	Menus/content should reposition properly	Inspect on small and large screens	Smooth rearrangement	Components adjust well	PASS

TEST CASE 5: VERIFY TEXT READABILITY

TC005(a)	Font sizes	Font should be readable	Review text on different screens	Font readable and sized well	Text is legible	PASS
TC005(b)	Line spacing and font style	Check line spacing and font styling	Inspect headings and paragraphs	Proper spacing and styling	Looks consistent	PASS
TC005(c)	No text truncation	Text should not get cut off	Inspect site in responsive view	Full visibility of content	No truncation observed	PASS

TC005(d)	Contrast and visibility	Ensure readability with background	Observe text and background	Sufficient contrast	Readable and clear	PASS
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TEST CASE 6: TEST IMAGE LOADING AND VISIBILITY

TC006(a)	Image loading speed	Images should load fast	Open page and observe image load time	Prompt image loading	Images load quickly	PASS
TC006(b)	Correct aspect ratio	Images must not stretch	Resize browser and observe images	Aspect ratio maintained	All images look proper	PASS
TC006(c)	Broken or placeholder images	Check for missing or broken images	Inspect all images on page	No broken icons	All images displayed	PASS
TC006(d)	Resolution	Image quality should be sharp	View on high-res display	Images are crisp and clear	High-quality images	PASS

TEST CASE 7: VALIDATE HYPERLINK FUNCTIONALITY

TC007(a)	Correct destination	Hyperlinks should lead correctly	Click internal/external links	Links work properly	Navigates correctly	PASS
TC007(b)	No broken links	No 404 errors or dead links	Click all available links	All links functional	No broken links	PASS
TC007(c)	Link styles	Link color and underline on hover	Hover over links	Styles change appropriately	Style behavior is consistent	PASS
TC007(d)	New tab behavior	External links open in new tabs	Click external links	Opens in new tabs	Works as expected	PASS

TEST CASE 8: TEST INPUT FIELD VALIDATIONS

TC008(a)	Valid and invalid input handling	Form validations	Enter various inputs in forms	Proper error/success messages	Validation works fine	PASS
TC008(b)	Placeholder text	Input fields should guide users	Observe placeholder text	Clear and descriptive	Well-written placeholders	PASS
TC008(c)	Empty field behavior	Check required field validation	Leave required fields empty	Show error messages	Errors shown properly	PASS
TC008(d)	Form submission	Submit valid/invalid forms	Observe result	Error or success response	Working as expected	PASS

TEST CASE 9: VERIFY HOVER EFFECTS

TC009(a)	Visual consistency	Hover animations should be consistent	Hover interactive elements	See consistent behavior	Animations work well	PASS
TC009(b)	Performance	Hover effects must respond instantly	Hover repeatedly	No lags or glitches	Fast and smooth	PASS
TC009(c)	Accessibility	Hover effects should be legible and nonintrusive	Hover and read text	Accessible and legible	Good accessibility	PASS

TEST CASE 10: VALIDATE THE UI RESPONSIVENESS TO KEYBOARD NAVIGATION

TC010(a)	Tab key navigation	Tab should cycle through focusable items	Press Tab repeatedly	Logical focus order	Tab works correctly	PASS
TC010(b)	Enter key functionality	Enter should activate elements	Navigate and press Enter	Activates correctly	Works well	PASS
TC010(c)	Focus visibility	Focused elements should be visually clear	Tab through page	Focus highlights visible	Clear focus indicators	PASS
TC010(d)	Esc key behavior	Esc should close modals	Open modal and press Esc	Modal closes as expected	Modal closes properly	PASS

Automation Testing Table:

Test Case ID	Title	Description	Tool Used	Status
ATC001	Verify Homepage Load	Validate page load using Katalon Recorder	Katalon Recorder	PASS
ATC002	Check Navigation Bar	Ensure nav links redirect correctly	Katalon Recorder	PASS

ATC003	Validate Buttons	Test all button actions	Katalon Recorder	PASS
ATC004	Form Input Validation	Check input field validation	Katalon Recorder	PASS
ATC005	Test Image Load	Validate that all images load	Katalon Recorder	PASS
ATC006	Broken Links	Confirm all links are working	Katalon Recorder	PASS
ATC007	Cross-Browser Compatibility	Check basic functionality in different browsers	Katalon Recorder	PASS
ATC008	Verify Hover Effects	Check hover functionality	Katalon Recorder	PASS
ATC009	Keyboard Navigation	Validate tab and enter key functionality	Katalon Recorder	PASS
ATC010	Form Submission Behavior	Validate success/failure messages	Katalon Recorder	PASS
ATC011	Delayed Button Response	Test for slow feedback on click	Katalon Recorder	FAIL

ATC012	Color Inconsistency	Validate color mismatches on elements	Katalon Recorder	FAIL
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FITNESS TRACKER MANUAL TESTING

Test Case ID	Test Case Description	Steps	Expected Result	Actual Result	Status
TC_FT_01	Verify user registration functionality	1. Open registration page 2. Enter valid details 3. Click "Register"	User should be registered and redirected to login page	Works as expected	PASS

TC_FT_02	Login immediately after registration	1. Register a user 2. Click "Login" 3. Enter same credentials and submit	User should be logged in and taken to dashboard	Works as expected	PASS
TC_FT_03	Login after registration but after closing and reopening tab	1. Register a user 2. Close the browser/tab 3. Reopen the site 4. Go to login page and enter credentials	User should be logged in successfully	Login does not work — issue with session/local storage	FAIL

TC_FT_04	Check empty fields validation during registration	1. Leave fields empty 2. Click "Register"	Error messages should be displayed	Proper validation messages shown	PASS
TC_FT_05	Validate incorrect email format	1. Enter invalid email (e.g., anju.com) 2. Click "Register"	Error message for invalid email	Error displayed correctly	PASS
TC_FT_06	Password minimum length validation	1. Enter password with less than 6 characters 2. Click "Register"	Should not allow registration	Error message shown	PASS
TC_FT_07	Navigate to Fitness Goals page after login	1. Register and log in 2. Click "Fitness Goals"	Page should open with goal input options	Works correctly	PASS
TC_FT_08	Submit fitness data	1. Enter exercise duration and calories 2. Click "Submit"	Redirect to Progress Summary page with correct data	Data submitted and redirected correctly	PASS
TC_FT_09	Input validation on Fitness Goal fields	1. Leave goal input fields blank 2. Click "Submit"	Should show validation messages	Error messages shown	PASS

TC_FT_10	Verify UI responsiveness on devices	1. Open the browser on desktop 2. Check layout	Layout and content should adjust correctly	Responsive design works fine	PASS
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AUTOMATED TESTING

Test Case ID	Title	Description	Tool Used	Status
ATC_FT_01	Load Registration Page	Validate that the registration page loads	Katalon Recorder	PASS
ATC_FT_02	Submit Registration	Form submits successfully and redirects to login	Katalon Recorder	PASS
ATC_FT_03	Open Login Page	Ensure login page loads properly	Katalon Recorder	PASS
ATC_FT_04	Login Function	Log in using registered credentials	Katalon Recorder	PASS
ATC_FT_05	Access Goals Page	Navigate to the fitness goals input page	Katalon Recorder	PASS
ATC_FT_06	Submit Goal Data	Submit exercise and calories input	Katalon Recorder	PASS

ATC_FT_07	View Summary	Display summary of user fitness progress	Katalon Recorder	PASS
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Katalon Recorder 7.1.0

Katalon Recorder

WORKSPACE

Test Suites

Passed: 1

Failed: 0

Untitled Test Suite

Untitled Test Case

Dynamic Test Suites

Test Data

Extension script

Profiles

Record

Play Test Case

Play Test Suite

Play All Suites

Pause Execution

Untitled Test Case

Command

Target

Value

open	http://localhost:8080/FitnessTracker/register.html	
click	id=username	
type	id=username	Anju
type	id=email	anjusaji456@gmail.com
click	id=password	
type	id=password	anju1234
click	xpath=//button[@type=submit]	
open	http://localhost:8080/FitnessTracker/RegisterServlet	
open	http://localhost:8080/FitnessTracker/login.html	
click	id=username	
type	id=username	Anju

Log

Screenshots

Variables

Reference

Self-healing

Dashboard

[info] Executing: | click | id=exercise_duration | |

[info] Executing: | type | id=exercise_duration | 30 |

[info] Executing: | click | id=calories_burned | |

[info] Executing: | type | id=calories_burned | 34 |

[info] Executing: | click | xpath=//button[@type=submit] | |

[info] Executing: | open | http://localhost:8080/FitnessTracker/progressSummary.html | |

[info] Executing: | click | xpath=//button[@onclick=window.location.href='fitnessgoals.html'] | |

[info] Executing: | open | http://localhost:8080/FitnessTracker/fitnessgoals.html | |

[info] Time: Sat Apr 19 2825 13:51:25 GMT+0530 (India Standard Time) Timestamp: 174505885164

[info] Test case passed

Sign in to enable automatic backup. Refresh

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator Query 1 project Limit to 1000 rows

MANAGEMENT Server Status Client Connections Users and Privileges Status and Performance Data Export Data Import

INSTANCE Startup / Stop Server Log Options File

PERFORMANCE Dashboard Performance Monitor Performance Tuning

Administration Information

No object selected

```

1 • drop database fitness_db;
2 • create database fitness_db;
3 • USE fitness_db;
4 • show tables;
5 • describe users;
6 • drop table goals;
7 • drop table users;
8 • drop table progress;
9 • CREATE TABLE users (
10     user_id INT AUTO_INCREMENT PRIMARY KEY,
11     username VARCHAR(50) UNIQUE NOT NULL,
12     password VARCHAR(50) NOT NULL,
13     email VARCHAR(100) NOT NULL
14 );
15 • select * from users;
16 • CREATE TABLE goals (
17     goal_id INT AUTO_INCREMENT PRIMARY KEY,
18     user_id INT,
19     goal_type VARCHAR(50),
20     target_value DOUBLE,
21     current_value DOUBLE,
22     FOREIGN KEY (user_id) REFERENCES users(user_id)
23 );
24 • SELECT * FROM users WHERE username = 'Anju' AND password = 'anju789';
25
26 • CREATE TABLE progress (
27     progress_id INT AUTO_INCREMENT PRIMARY KEY,
  
```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
9	12:43:27	CREATE TABLE progress (progress_id INT AUTO_INCREMENT PRIMARY KEY, user_id INT, data DATE, val	0 message affected	0.031 sec

Context Help Snippets

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

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12     password VARCHAR(50) NOT NULL,
13     email VARCHAR(100) NOT NULL
14 );
15 • select * from users;
16 • CREATE TABLE goals (
17     goal_id INT AUTO_INCREMENT PRIMARY KEY,
  
```

Result Grid

	user_id	username	password	email
1	Anju	anju1234	anju456@gmail.com	
4	Anuj	anuj890	anuj123@gmail.com	
5	Anuj Dhimani	anuj8907	anujd@gmail.com	

users 4 x

Output

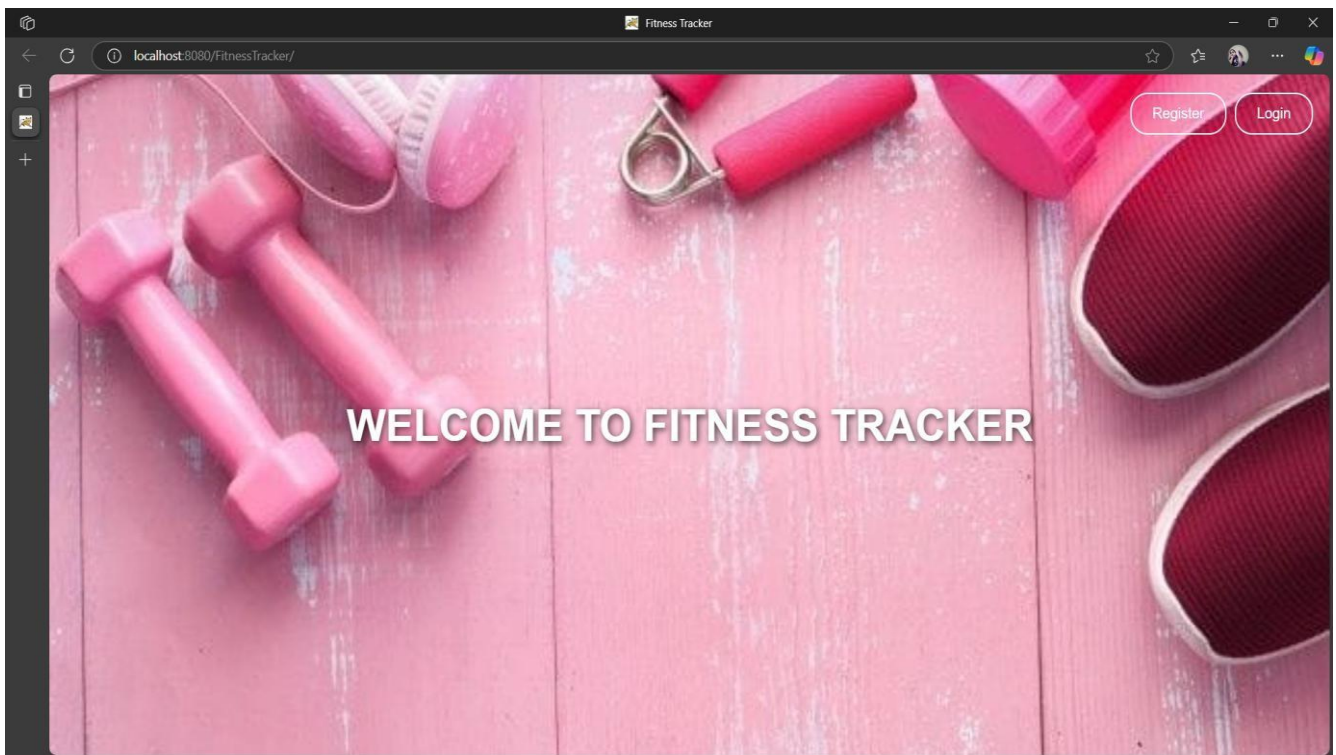
Action Output

#	Time	Action	Message	Duration / Fetch
9	12:43:27	CREATE TABLE progress (progress_id INT AUTO_INCREMENT PRIMARY KEY, user_id INT, data DATE, val	0 message affected	0.031 sec

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Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

1. INDEX



2. REGISTER PAGE

Register to Fitness Tracker

Username

Anuj_123Dhiman

Password

.....

Email

anuj345@gmail.com

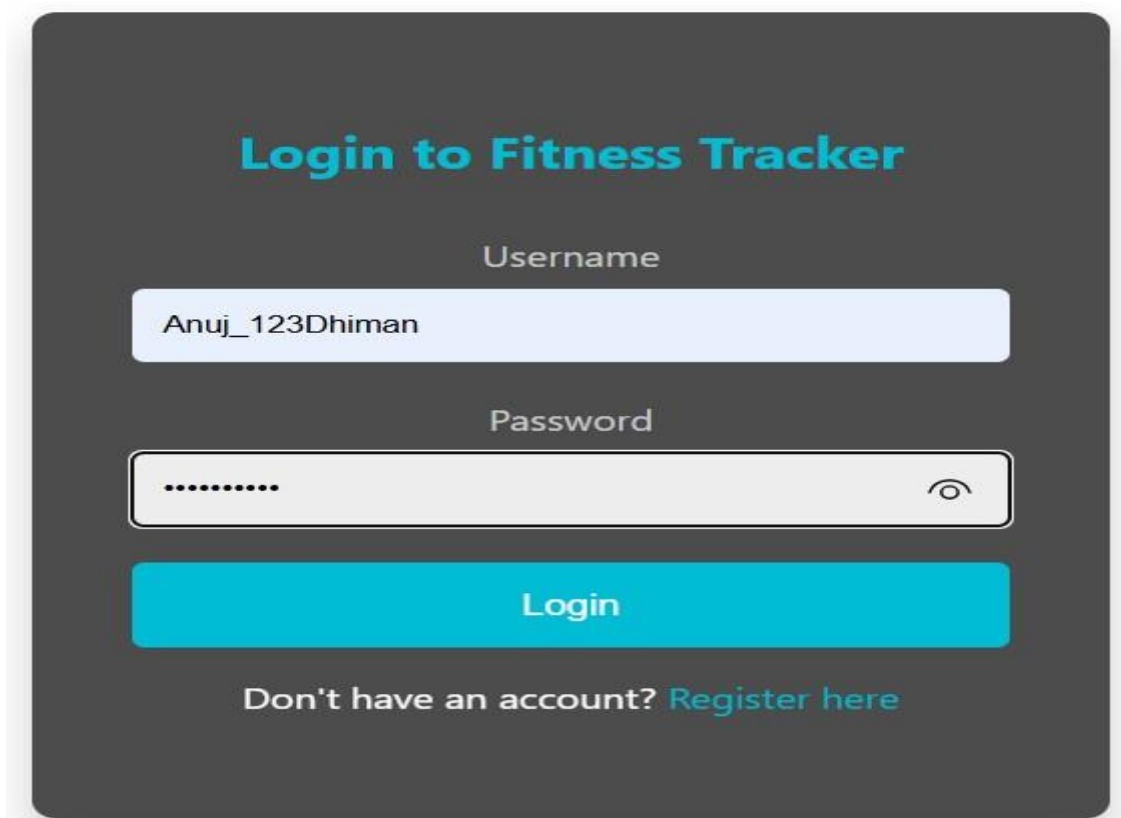
Register

Already have an account? [Login here](#)

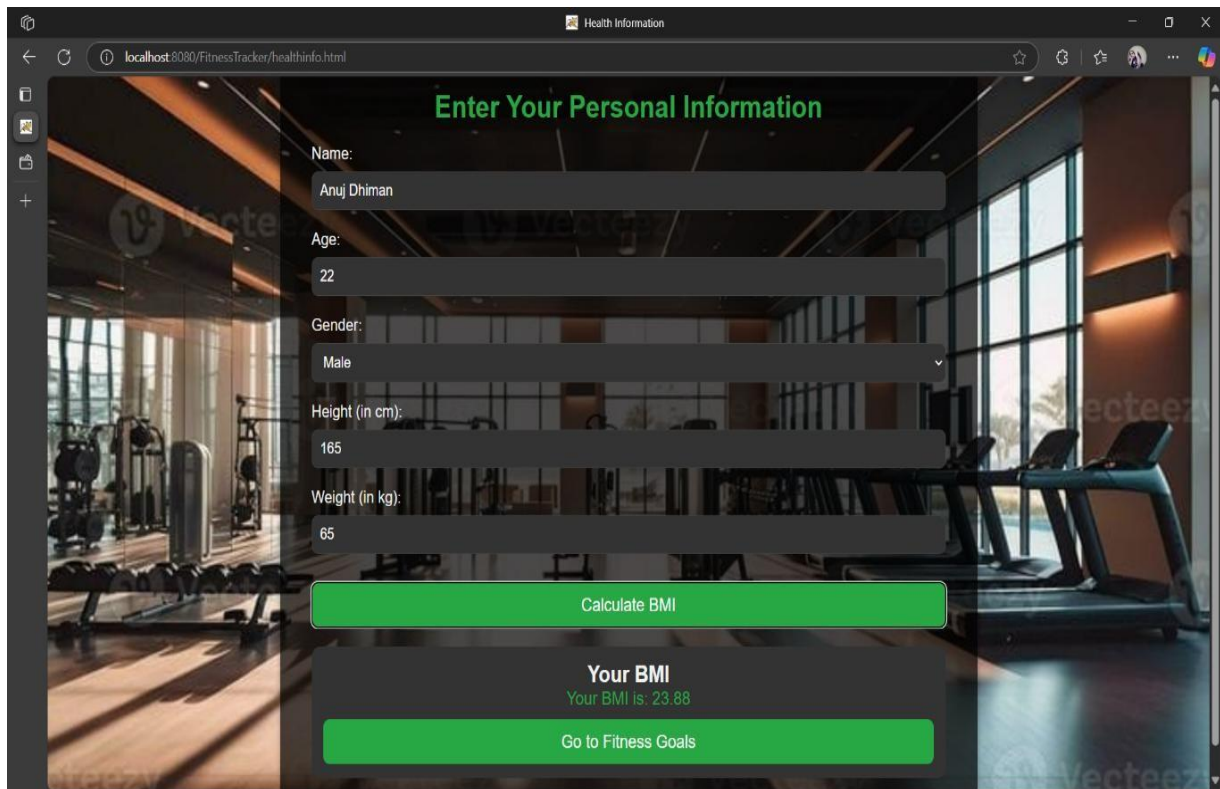
3. SUCCESSFUL REGISTRATION



4. LOGIN PAGE



5. PERSONAL HEALTH INFORMATION PAGE



Health Information

localhost:8080/FitnessTracker/healthinfo.html

Enter Your Personal Information

Name:

Age:

Gender:

Height (in cm):

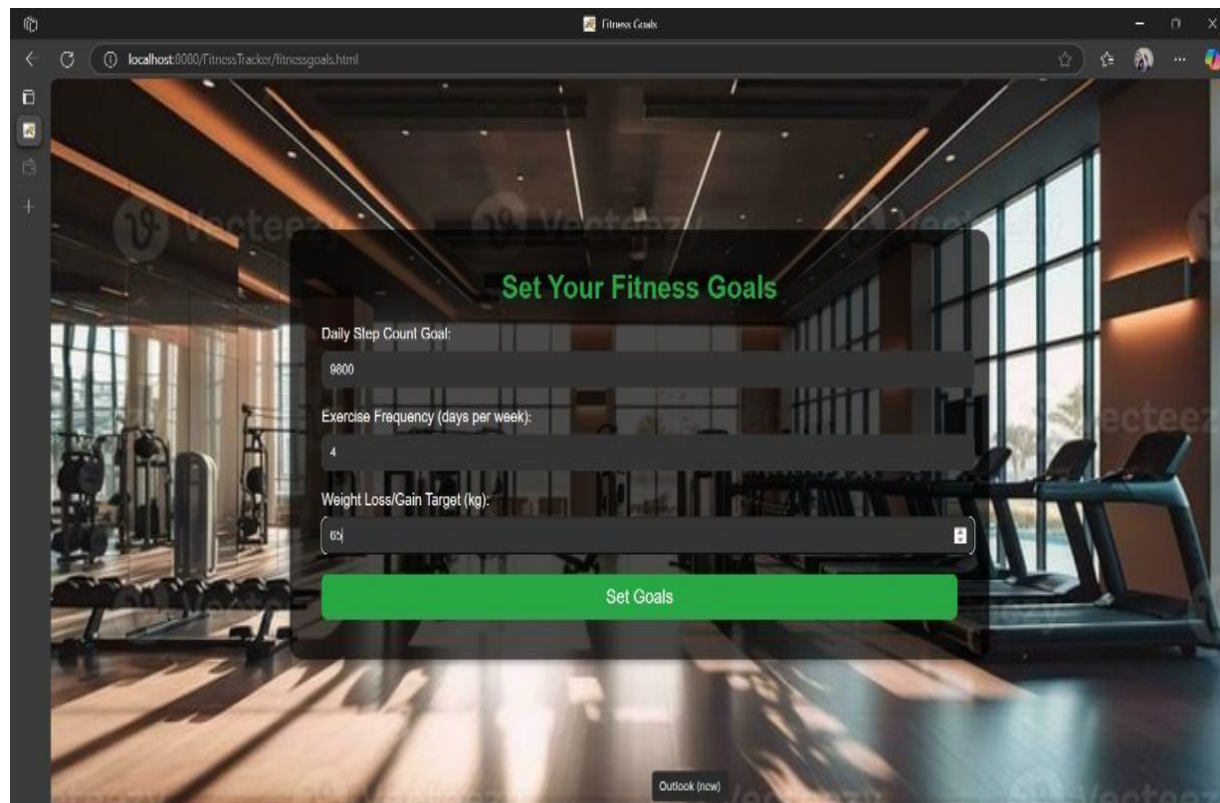
Weight (in kg):

[Calculate BMI](#)

Your BMI
Your BMI is: 23.88

[Go to Fitness Goals](#)

6. FITNESS GOALS PAGE



Fitness Goals

localhost:8080/FitnessTracker/Fitnessgoals.html

Set Your Fitness Goals

Daily Step Count Goal:

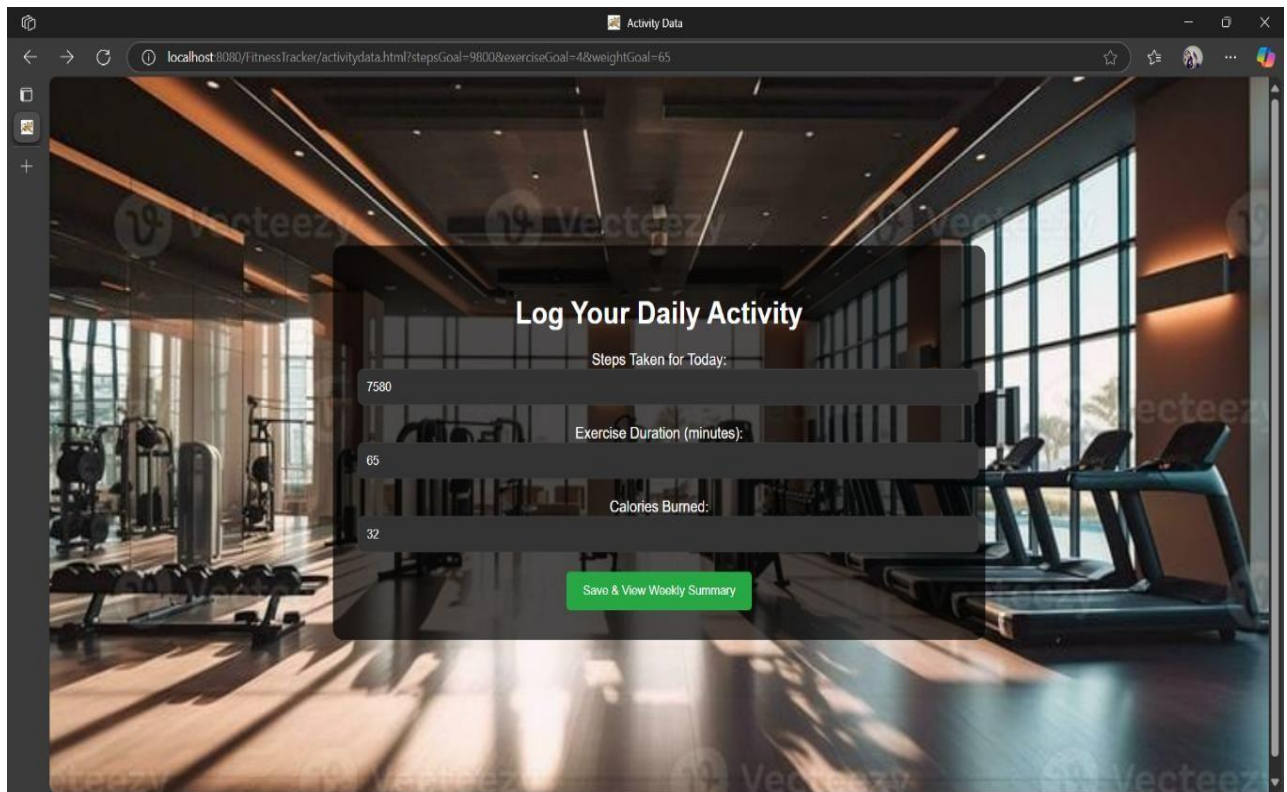
Exercise Frequency (days per week):

Weight Loss/Gain Target (kg):

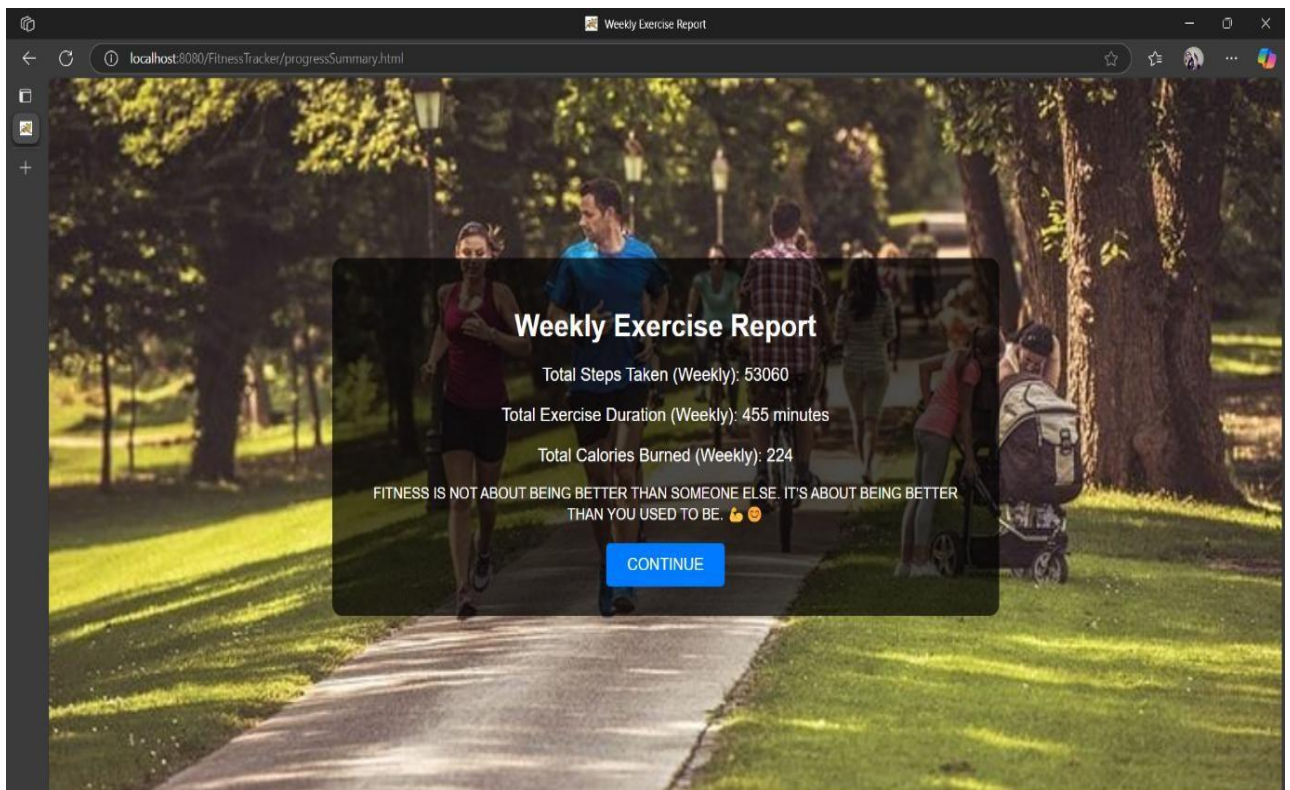
[Set Goals](#)

[Outlook \(now\)](#)

7. DAILY ACTIVITY TRACKING PAGE



8. PROGRESS SUMMARY FOR A WEEK



6. Dependencies

- Selenium-based Katalon Recorder Extension
- Google Chrome Browser
- Access to WHO website
- Stable Internet Connection

7. Output

- **Manual Testing:** Various UI bugs like color mismatch and slow button response were detected.
- **Automation Testing:** All scripts executed successfully except for cases with color inconsistencies and delayed button feedback.

8. Conclusion

The project successfully demonstrated how both manual and automation testing can be combined to achieve full-scale quality assurance. Manual testing highlighted visual and usability issues while automation ensured consistent test coverage and efficiency.

9. Learning Outcome

- Learned how to draft and execute manual test cases.
- Understood real-time application of Katalon Recorder for UI automation.
- Gained knowledge on bug tracking and test planning.
- Experienced how to record and replay browser interactions for test automation.

10. Future Scope

- Add test automation for login/authentication.
- Include performance and API testing.
- Integrate automation testing with CI/CD tools.
- Expand testing to mobile versions of the application.

Comparison Table: Manual Testing vs Automation Testing

Criteria	Manual Testing	Automation Testing
Execution Speed	Slow, depends on human effort	Fast, executes within seconds
Accuracy	May have human errors	Highly accurate and consistent
Cost	Low initial cost	High initial cost (tools, setup), but costeffective in long run
Test Coverage	Limited due to time and human effort	High coverage — tests can run in parallel
Repeatability	Repeating tests is timeconsuming	Easily repeatable with a single click
Best For	Exploratory, UI, usability, ad-hoc testing	Regression, load, functional, and performance testing
Maintenance	Easy to modify test steps	Needs script updates if UI/functionality changes
Tools Used	Browsers, Excel, JIRA	Katalon Recorder, Selenium, IDEs
Human Involvement	Required throughout	Mostly during creation; execution is automatic
Learning Curve	Simple, minimal technical skills needed	Requires some programming/tool knowledge