TRIBHUVAN UNIVERSITY

Institute of Science and Technology

AN INTERNSHIP REPORT

On

Quality Assurance

AT

BENT RAY TECHNOLOGIES PVT. LTD.

An Internship Report Submitted in Partial Fulfilment of the Requirement of

Bachelor of Science in Computer Science & Information Technology

Submitted To:

Department of Computer Science and Information Technology

College of Applied Business and Technology

Submitted by:

Himani Bhattarai [23561/076]

Reg. No: 5-2-360-11-2019

July, 2024

COLLEGE OF APPLIED BUSINESS AND TECHNOLOGY

Chabahil, Kathmandu, Nepal

Final Year Internship Report

On

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LETTER OF RECOMMENDATION

I hereby state and verify that this internship carried out by **Ms. Himani Bhattarai** entitled **"An internship Report on Quality Assurance at Bent Ray Technologies Pvt. Ltd."** In partial fulfilment of the requirements for the degree of B.Sc. in Computer Science and information Technology. I recommend this for further evaluation.

_____

Mr. Santosh Sharma

Supervisor

Department of Computer Science and IT

College of Applied Business and Technology

LETTER OF APPROVAL

This is to certify that this internship report prepared by **Ms. Himani Bhattarai** entitled **"An internship Report on Quality Assurance at Bent Ray Technologies Pvt. Ltd."** In partial fulfilment of the requirements for the degree of B.Sc. in Computer Science and Information Technology has been well studied. In our opinion it is satisfactory in the scope and quality as an internship for the required degree.

_____   _____

Mr. Ramesh Pandey   Mr. Santosh Sharma

Principal   Supervisor

_____   _____

Mr. Santosh Sharma   External Examiner

Program coordinator

ACKNOWLEDGEMENT

ABSTRACT

This report covers my role and experiences as a QA intern at Bent Ray Technologies Pvt. Ltd. During my internship, I worked on various tasks that helped me learn and improve my skills in QA. My responsibilities included testing various project environments, smoothing user testing, and managing test cases and documenting feedbacks. I used tools like Skype, Selenium, Figma, and JIRA to make the QA processes more efficient. I also helped testing and writing various test cases, testing application performance, and ensure the systems were operating properly. This internship gave me valuable hands-on experience and increased my knowledge of modern QA practices, preparing me for a successful career in the field.

Keywords: QA, JIRA, Selenium, Testing, Reporting, Automation

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LIST OF ABBREVIATIONS

APA	Institute of Electrical and Electronics Engineers
CEO	Chief Executive Officer
CSS	Cascading Style Sheets
HRMS	Human Resource Management System
HTML	Hypertext Markup Language
IT	Information Technology
PDF	Portable Document Format
QA	Quality Assurance
SEO	Search Engine Optimization
TC	Test Case
TOC	Table of Contents
UI	User Interface

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CHAPTER 1 : INTRODUCTION

1.1 Introduction

During my internship at Bent Ray Technologies, which lasted from 18th March, 2024 to 7th June, 2024, I had the opportunity to work as a Quality Assurance (QA) intern. My primary responsibility was to ensure the quality and reliability of the software products developed by the company. This was achieved through a combination of manual and automated testing, defect tracking, and close collaboration with the development team. The goal was to identify and resolve any issues that could affect the performance or user experience of the software. Over the course of the internship, I was involved in various projects, each with its own set of challenges and learning opportunities. This report aims to provide a comprehensive overview of my experiences, the tasks I undertook, the skills I developed, and the insights I gained during my time at Bent Ray Technologies.

1.2 Problem Statement

The key problem I focused on during my internship was the detection and resolution of software defects to enhance the overall quality of the company's products. In the highly competitive software industry, maintaining high-quality standards is essential for customer satisfaction and market success. Software defects, if not identified and resolved early, can lead to significant issues post-release, including customer dissatisfaction, increased support costs, and potential loss of revenue. The main challenge was to develop and implement efficient testing protocols that could identify issues early in the development cycle. This proactive approach aimed to minimize the time and resources spent on fixing problems after the software had been released, thereby ensuring a smoother user experience and better product reliability.

1.3 Objectives

The main objectives of my internship were:

- To develop and execute comprehensive test plans for various software products.
- To identify, document, and report software defects.
- To enhance my knowledge and skills in QA methodologies and tools.
- To collaborate with the development team to understand product functionalities and ensure thorough testing.

1.4 Scope and Limitation

During my internship at Bent Ray Technologies, I focused on software testing and quality assurance. I developed and executed test plans for various software projects, identifying and documenting defects, and collaborating with developers to resolve issues. This allowed me to gain practical experience in QA processes from planning to deployment.

The different limitations of this internship were:

- Limited time meant I focused on specific parts of projects, not seeing their full impact.
- Access to certain tools was restricted, limiting the depth of my testing.
- Company procedures sometimes restricted trying new testing approaches.
- Coordination challenges with developers occasionally delayed issue resolutions.

1.5 Report Organization

The report has been prepared following the guidelines provided by Tribhuvan University. The report is separated into different chapters. Each chapter consists of various sub chapters with its contents. The preliminary section of the report consists of Title Page, Acknowledgement, Abstract, Table of Contents, List of Abbreviations, List of Figures, and List of Tables.

The main report is divided into four chapters, which includes:

Chapter 1: Introduction

It includes the general overview of the internship as a whole. It includes the Problem Statement, Objectives, and Scope/Limitations for the internship I've completed.

Chapter 2: Organization Details and Literature Review

It includes the introduction, organizational hierarchy, how and what domain does the organization works on, overall description of the department, and also some other studies on the topic of my internship.

Chapter 3: Internship Activities

This chapter includes all the roles and responsibilities I acquire as an QA Intern. Table for weekly logs I've maintained, Description of Projects I was assigned on, and overall tasks I've carried out during my internship period.

Chapter 4: Conclusion and Learning Outcome

This portion concludes my overall internship report and also contains the learning experience and knowledge I've gathered during my internship period.

The final part of the report consists of References and Appendices. The references are listed in accordance to the APA referencing standards and the Appendices include the screenshots of the some of my projects, tasks etc.

CHAPTER 2 : ORGANIZATION DETAILS AND LITERATURE REVIEW

2.1 Introduction to Organization

Bent Ray Technologies is a leading IT company in Nepal, offering services in web design, software development, and IT outsourcing. It has quickly become one of the fastest-growing companies in the country due to its commitment to providing high-quality IT solutions. The company is driven by a team of innovative IT professionals and a diverse pool of talented individuals. At Bent Ray Technologies, the focus is on delivering superior IT concepts and solutions tailored to meet the needs of the competitive market. The company's success is rooted in its ability to craft customized solutions that enhance the digital presence and operational efficiency of businesses across various industries. With a strong emphasis on quality and customer satisfaction, Bent Ray Technologies continues to establish itself as a trusted partner for businesses seeking reliable and innovative IT services. [2]

Table 2.1: Organization Details

Organization Name	Bent Ray Technologies (Pvt.) Ltd.
CEO/Chairman	Shamit Shrestha
Address	Chakupat, Mitra Marg, Lalitpur, Nepal.
Contact No.	+977-01-5268252, +977-1-6921063, 9801121693
Email	info@bentraytech.com
Website	https://bentraytech.com
Working Days	Monday-Friday (9AM-6PM)

2.2 Organizational Hierarchy

Organizational hierarchy refers to the structured arrangement of roles and responsibilities within a company, typically featuring a clear chain of command from top executives to individual employees. This structure is crucial as it streamlines operations, facilitates effective communication, and ensures everyone understands their specific roles and responsibilities. By defining levels of authority and accountability, organizational hierarchy enables quick decision-making and fosters accountability, while also supporting

career development by providing clear paths for advancement. Overall, it maintains order and efficiency in the company's operations.
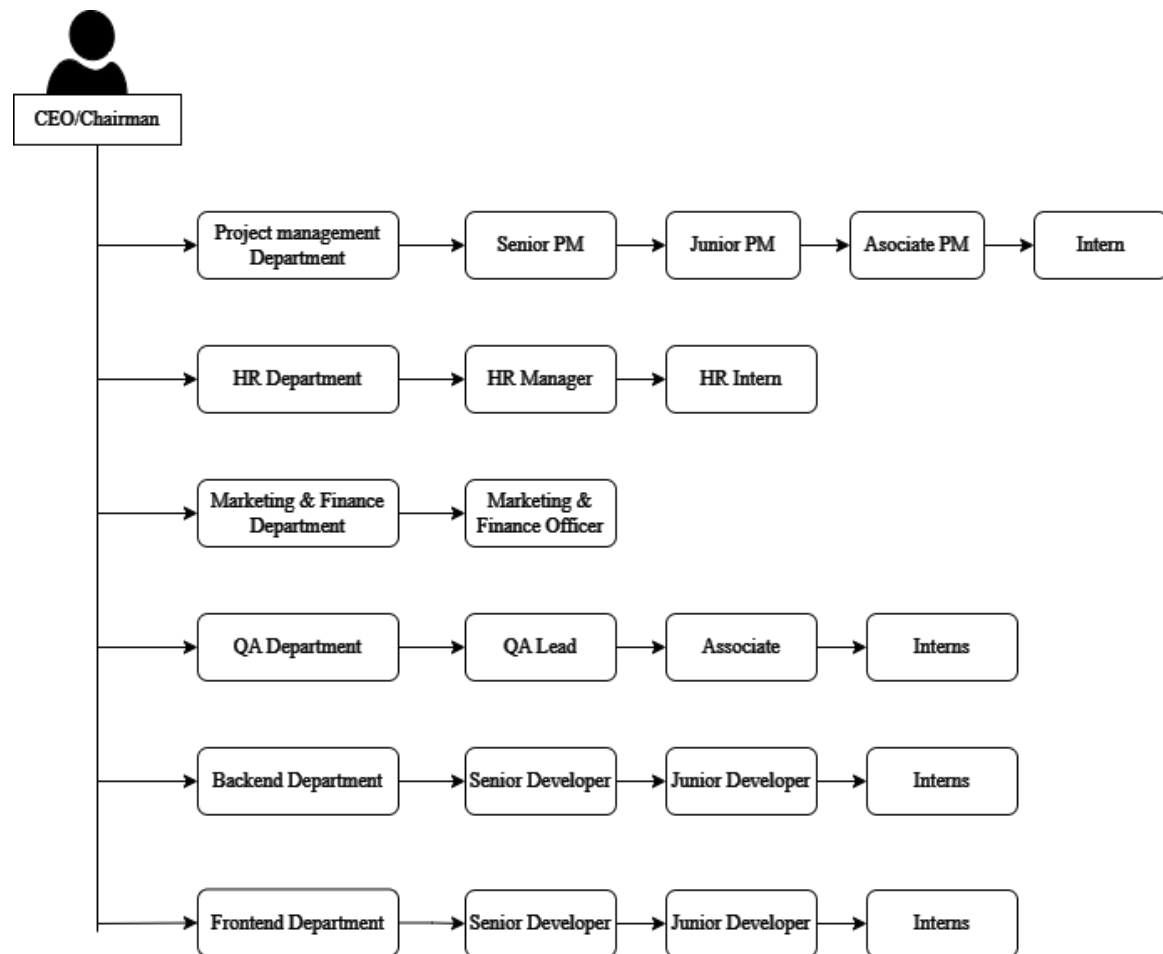

Figure 2.1: Organizational Hierarchy of Bent Ray Technologies

2.3 Working Domains of Organization

Bent Ray Technologies specializes in a diverse range of IT services tailored to meet the dynamic needs of modern businesses:

- **Tailored Software Development**: Leveraging deep industry expertise and cutting-edge technologies, they develop reliable and scalable software solutions customized for any operating system, browser, or device. Their solutions are meticulously crafted to align perfectly with clients' business requirements.

- **Website Development**: They create visually captivating and responsive websites using the latest technologies, ensuring these platforms effectively showcase clients' business insights and engage visitors across all devices.

- **Web Hosting**: With robust and highly available servers and proactive support, they ensure seamless hosting for clients' websites and applications. Their 24/7 infrastructure monitoring guarantees uninterrupted service to keep businesses running smoothly.
- **Mobile App Development**: Their skilled developers craft high-quality mobile applications for various platforms, prioritizing security and functionality to deliver optimal user experiences.
- **SEO Services**: Their SEO experts enhance online presence by driving targeted traffic to clients' websites through strategic keyword optimization, helping them achieve higher visibility in search engine results.
- **IT Consulting**: Clients can utilize Bent Ray Technologies' deep technical expertise to transform their organizations through technological advancements. From automating business processes to optimizing workflows, their consulting services empower businesses to thrive in a digital landscape.

2.4 Description of Intern Department

During my internship at Bent Ray Technologies, I worked in the Quality Assurance (QA) department under the guidance of Mr. Shamit Shrestha, the CEO & Chairman. This department is pivotal in ensuring the high quality and reliability of the company's software products prior to client release. My responsibilities included assisting in the development and execution of comprehensive test plans, identifying and documenting software defects, and verifying fixes alongside experienced QA professionals.

I gained practical experience in various testing methodologies such as functional testing and performance testing. The collaborative environment facilitated learning from mentors and contributing to real-world projects, enhancing my understanding of QA processes and industry standards. This internship provided invaluable insights into maintaining product excellence and the importance of QA in software development at Bent Ray Technologies.

2.5 Literature Review

During my internship period, I got flashed with a very interesting study report entitled as "Emergence of Quality Assurance and Accreditation-Context of Higher Education in Nepal" by Anjay Kumar Mishra and Phul Babu Jha. This article explores the evolving landscape of quality assurance and accreditation in higher education institutions across Nepal. Mishra and Jha highlight the importance of establishing robust quality assurance

frameworks to enhance educational standards and ensure accountability. They discuss the challenges faced by Nepalese universities in meeting international benchmarks and the role of accreditation in improving academic credibility and fostering global partnerships. The authors propose strategies for integrating quality assurance practices into institutional policies, emphasizing the need for continuous improvement and stakeholder engagement. This study provides valuable insights into enhancing educational quality and competitiveness within Nepal's higher education sector. [1]

During the starting phase of my internship, there was a blog post entitled as "What Is Quality Assurance & Why Is It Essential?" published by EB Pearls. It outlines the core principles of QA, including rigorous testing methodologies and adherence to industry standards. The blog discusses how QA processes mitigate risks and identify defects early in the development lifecycle, thereby reducing costs and time-to-market for software products. It highlights the importance of continuous improvement and feedback loops in QA practices to maintain high standards of software excellence. This resource served as a valuable foundation during the initial phase of my research, offering practical insights into implementing effective QA strategies and methodologies within software projects. [3]

CHAPTER 3 : INTERNSHIP ACTIVITIES

3.1 Role and Responsibilities

During my internship at Bent Ray Technologies, I was assigned as QA intern to the Quality Assurance (QA) department under the supervision of Mr. Shamit Shrestha, CEO and Chairman.

Some of the major responsibilities during my internship period were.

- Developed and executed comprehensive test cases for various software projects.
- Identified and documented software defects and issues using various tools.
- Verified bug fixes to ensure they met quality standards before release.
- Collaborated with the development team to address and resolve software issues.
- Participated in team meetings to provide feedback and suggest improvements to QA processes.

3.2 Weekly Log

Table 3.1: Internship Logs Week-1

Date	Day	Detailed Description of Tasks
Mar 18, 2024	Monday	Set up environment, created email and Skype accounts. Asked supervisor for help.
Mar 19, 2024	Tuesday	Watched YouTube videos on QA methodologies and tools. Followed tutorials and documentation.
Mar 20, 2024	Wednesday	Read testing documentation. Configured laptop environment with supervisor's help.
Mar 21, 2024	Thursday	Continued reading documentation and watching tutorials. Took notes.
Mar 22, 2024	Friday	Reflected on learning: importance of asking for help, using tutorials, and taking notes.

Table 3.2: Internship Logs Week-2

Date	Day	Detailed Description of Tasks
Mar 25, 2024	Monday	Started involvement in various projects. Conducted unit testing for SUBISU.
Mar 26, 2024	Tuesday	Conducted system testing for Flexyear. Reported issues like font size, icons, and responsiveness.
Mar 27, 2024	Wednesday	Tested Vendor and Purchase Invoice for Accswift. Documented errors in check-in/out for Flexyear.
Mar 28, 2024	Thursday	Reported all issues to developers. Documented solutions and feedback.
Mar 29, 2024	Friday	Conducted system testing for Flexyear. Reported issues like font size, icons, and responsiveness.

Table 3.3: Internship Logs Week-3

Date	Day	Detailed Description of Tasks
Apr 1, 2024	Monday	Tested HTML and mobile view of Subisu.
Apr 2, 2024	Tuesday	Continued testing Subisu. Found issues with web form responsiveness, headers, footers, and image sizing.
Apr 3, 2024	Wednesday	Conducted web and mobile testing for Himalayan Trek. Reported description size issues.
Apr 4, 2024	Thursday	Reported all issues to developers. Documented solutions and feedback.
Apr 5, 2024	Friday	Tested the mobile view of Himalayan Trek. Found issues with container, image, and heading orientation.

Table 3.4: Internship Logs Week-4

Date	Day	Detailed Description of Tasks
Apr 8, 2024	Monday	Wrote test cases for Applyabroad.
Apr 9, 2024	Tuesday	Tested Applyabroad's workflow. Faced issues with formatting and explaining test cases.
Apr 10, 2024	Wednesday	Tested the mobile view of Himalayan Trek. Found issues with container, image, and heading orientation.
Apr 11, 2024	Thursday	Watched videos and studied documentation to improve test case writing. Reported mobile app UI issues to developers.
Apr 12, 2024	Friday	Revised and formatted test cases for Applyabroad based on newly learned guidelines.

Table 3.5: Internship Logs Week-5

Date	Day	Detailed Description of Tasks
Apr 15, 2024	Monday	Performed data entry and content updates for the Subisu website.
Apr 16, 2024	Tuesday	Updated images for Nepal Manpower. Faced issues with image formatting.
Apr 17, 2024	Wednesday	Conducted web testing for NCIT. Found configuration issues with updated data.
Apr 18, 2024	Thursday	Corrected content lengths and word sizes. Reformatted images for Nepal Manpower.
Apr 19, 2024	Friday	Used tools like Photoshop and GIMP to reduce image sizes and correct formats.

Table 3.6: Internship Logs Week-6

Date	Day	Detailed Description of Tasks
Apr 22, 2024	Monday	Tested laptop view of Himalayan Smile.
Apr 23, 2024	Tuesday	Continued testing laptop view of Himalayan Smile. Found responsiveness issues.
Apr 24, 2024	Wednesday	Reported responsiveness issues to the development team.
Apr 25, 2024	Thursday	Performed data entry on the website of Kathmandu Momo.
Apr 26, 2024	Friday	Tested laptop view of NCIT website.

Table 3.7: Internship Logs Week-7

Date	Day	Detailed Description of Tasks
Apr 29, 2024	Monday	Tested HTML and laptop view of Wulling Motors.
Apr 30, 2024	Tuesday	Conducted data cleaning for Kathmandu Momo. Found missing data values.
May 1, 2024	Wednesday	Tested HTML, laptop view, and overall responsiveness of Madhayna. Discovered HTML/CSS bugs.
May 2, 2024	Thursday	Fixed some HTML syntax errors and forwarded remaining issues to developers. Formatted dates and text.
May 3, 2024	Friday	Reflected on the importance of consistent data entry and learned techniques for handling missing data.

Table 3.8: Internship Logs Week-8

Date	Day	Detailed Description of Tasks
May 6, 2024	Monday	Tested laptop view of NCIT website.
May 7, 2024	Tuesday	Updated content table of Link HR. Found broken links.

Date	Day	Description
May 8, 2024	Wednesday	Performed testing on ACC Swift and Kathmandu Momo. Identified misaligned elements.
May 9, 2024	Thursday	Used link checkers to find broken links and tested various laptop screen sizes for consistency.
May 10, 2024	Friday	Conducted performance testing using JMeter and optimized for better performance.

Table 3.9: Internship Logs Week-9

Date	Day	Detailed Description of Tasks
May 13, 2024	Monday	Tested Care Partner Housing website. Encountered issues with web view and incorrect data entry.
May 14, 2024	Tuesday	Ensured all data on Care Partner Housing website was legitimate and complete during testing.
May 15, 2024	Wednesday	Documented clear instructions and guides for the website's workflow.
May 16, 2024	Thursday	Emphasized the importance of thorough testing to ensure website functionality.
May 17, 2024	Friday	Tested HTML, laptop view, and overall responsiveness of Madhayna. Discovered HTML/CSS bugs.

Table 3.10: Internship Logs Week-10

Date	Day	Detailed Description of Tasks
May 20, 2024	Monday	Tested HTML and laptop view of Wulling Motors. Identified website layout issues on laptops.
May 21, 2024	Tuesday	Conducted responsive and web testing of Kathmandu Momo. Found display issues across different devices.
May 22, 2024	Wednesday	Performed functionality testing of Madhyanha. Discovered some features not working.
May 23, 2024	Thursday	Tested Madhyanha on various devices (desktop, tablet, mobile) and reported issues to developers.
May 24, 2024	Friday	Performed overall UI testing of Unipath. Found inconsistencies in UI elements.

Table 3.11: Internship Logs Week-11

Date	Day	Detailed Description of Tasks
May 27, 2024	Monday	Started learning JMeter for load testing.
May 28, 2024	Tuesday	Explored automation using Python and Selenium.
May 29, 2024	Wednesday	Took tutorials on JMeter basics from Simplilearn. Studied Selenium documentation and practiced writing automated test scripts.
May 30, 2024	Thursday	Learned to export reports from JMeter testing. Explored Selenium's capabilities in web automation.
May 31, 2024	Friday	Performed functionality testing of Madhyanha. Discovered some features not working.

Table 3.12: Internship Logs Week-12

Date	Day	Detailed Description of Tasks
Jun 3, 2024	Monday	Conducted responsive and home page functionality testing of Madhyanha. Identified issues with homepage features.
Jun 4, 2024	Tuesday	Performed overall UI testing of Unipath. Found inconsistencies in UI elements.
Jun 5, 2024	Wednesday	Tested headers, icons, navigations, buttons, and forms on Unipath to ensure functionality.
Jun 6, 2024	Thursday	Ensured proper responsiveness by testing on desktops, tablets, and mobiles.
Jun 7, 2024	Friday	Tested Madhyanha on various devices (desktop, tablet, mobile) and reported issues to developers.

3.3 Description of The Projects Involved During Internship

Project: Overall User Interface Testing of Kathmandu Momo (KATHMANDU MOMO)

During my internship at Bent Ray Technologies as a QA intern, I took on a project to thoroughly test the user interface (UI) of Kathmandu Momo. This involved carefully

examining how the website looked and worked across various devices like computers, tablets, and phones. I created detailed plans for testing and checked everything from buttons to how the pages displayed information. I noted any problems with how things looked or worked and made sure to document these issues clearly. This project helped me learn more about testing methods and ensuring websites are easy to use for everyone.
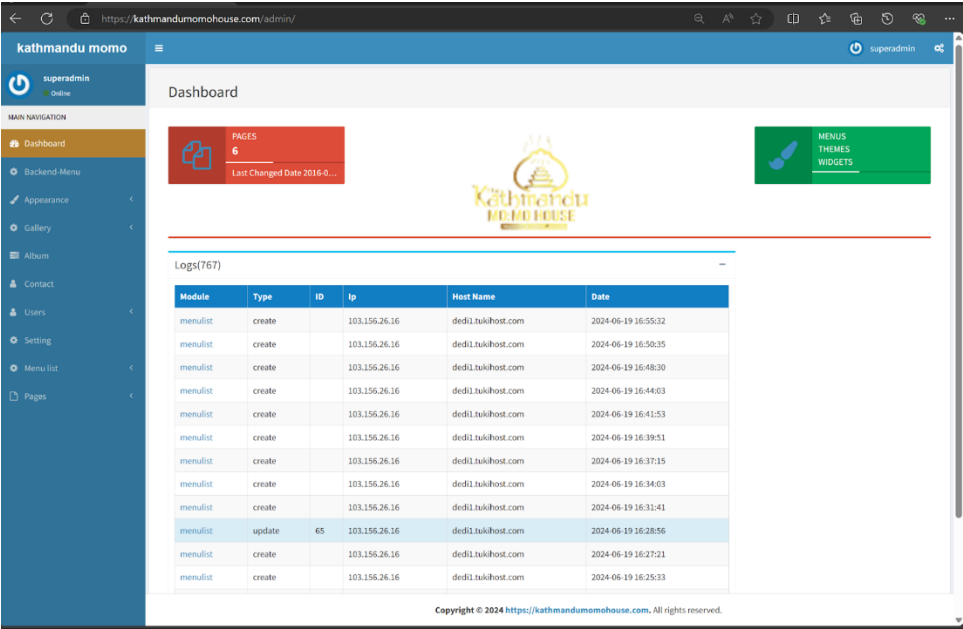
Figure 3.1: Manual Data Entry on Kathmandu Momo

Project: Manual Data Entry & Mobile Testing of Himalayan Trek

During my internship at Bent Ray Technologies, I undertook the project of manual data entry and mobile testing for Himalayan Trek. This involved meticulously entering data into the system and testing the mobile version of the Himalayan Trek application. For data entry, I ensured accuracy and completeness, verifying each entry to maintain data integrity. During mobile testing, I examined how the application functioned on different mobile devices, checking for usability, responsiveness, and any potential issues with navigation or display. This project provided valuable hands-on experience in data management and mobile application testing, contributing to my growth in QA testing skills and understanding of user experience optimization.

Project: User Interface and Mobile Testing of Unipath

During my internship at Bent Ray Technologies, I worked on Unipath and testing how it works. I created detailed plans to check every part of Unipath, like submitting applications and uploading documents. By following these plans, I found problems and made sure

everything worked correctly. This project helped me improve my skills in testing and making sure software works well for users.
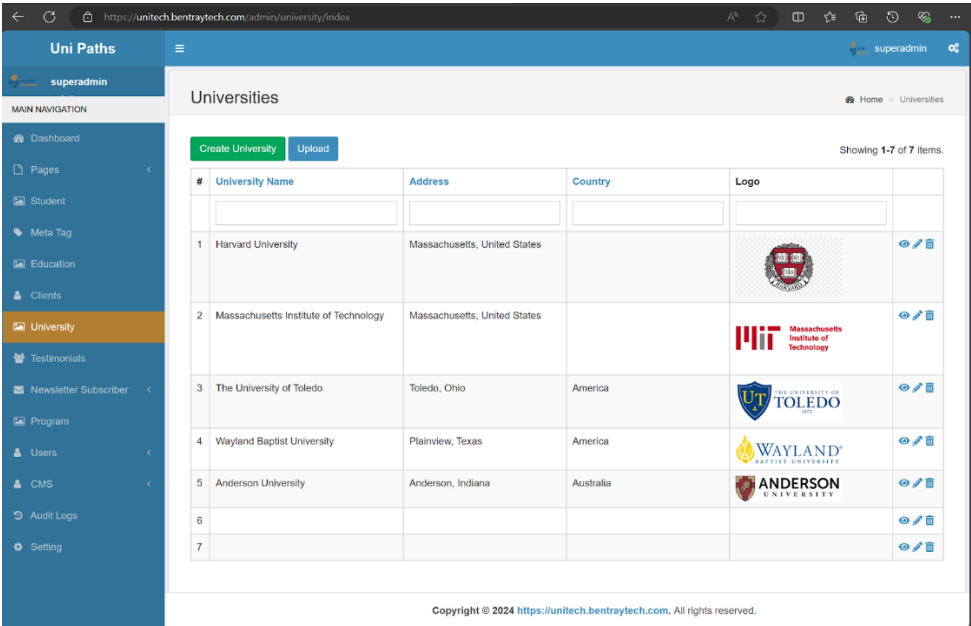
Figure 3.2: Manual Data Entry on Unipath
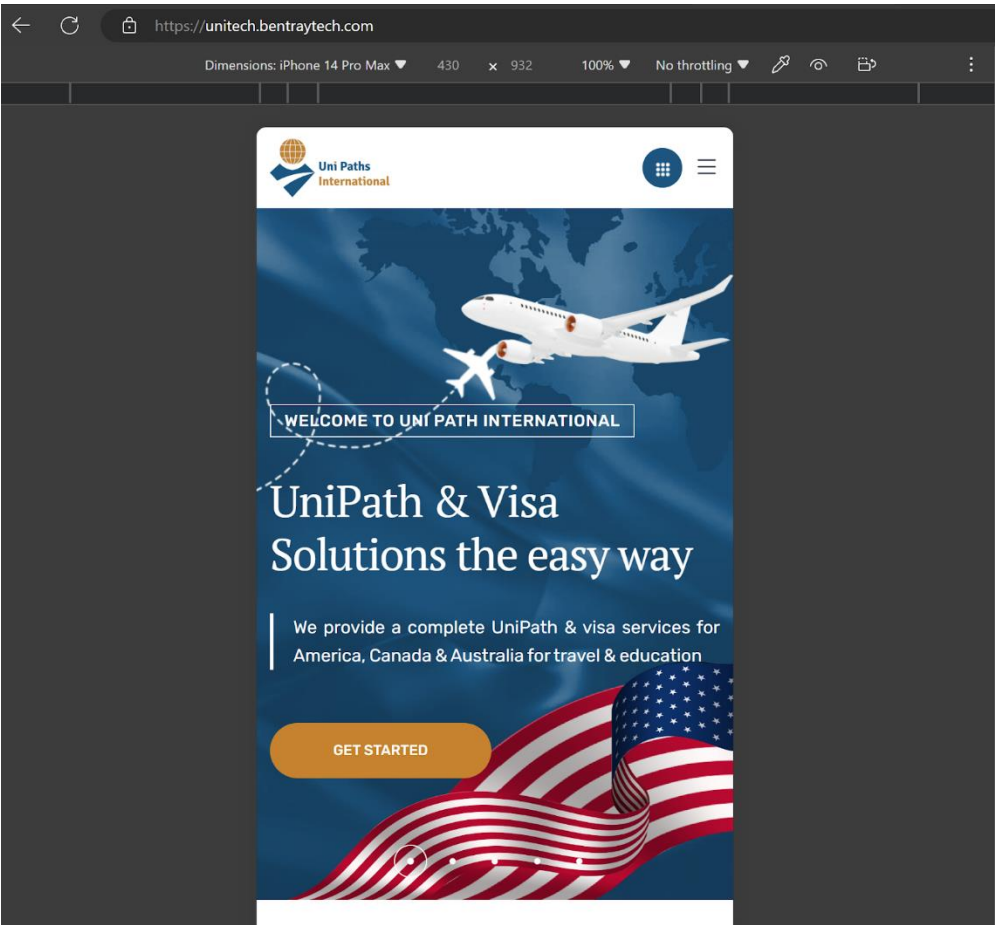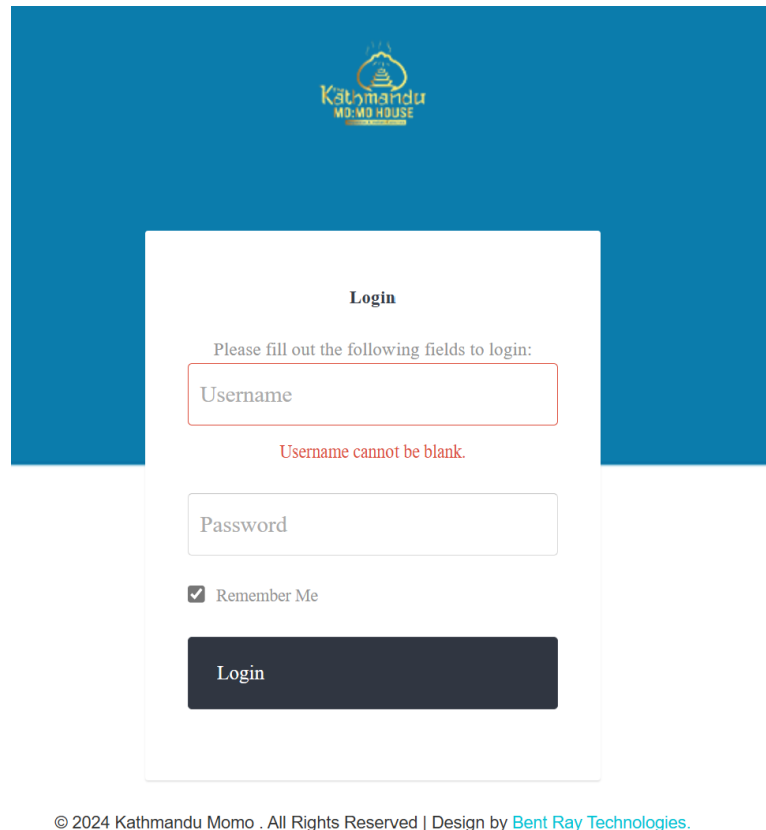
Figure 3.3: Mobile View Testing of Unipath

3.4 Tasks Performed

Some of the I was involved during my internship were as given below:

Task 1: Manual Data Entry on Various Sites (e.g., KATHMANDU MOMO)

First, I have to Log in to the designated data entry platforms using provided credentials.

Figure 3.4: Login Form of KATHMANDU MOMO

For entering data into the menu of Kathmandu Momo, I have to navigate to the menu items on site.
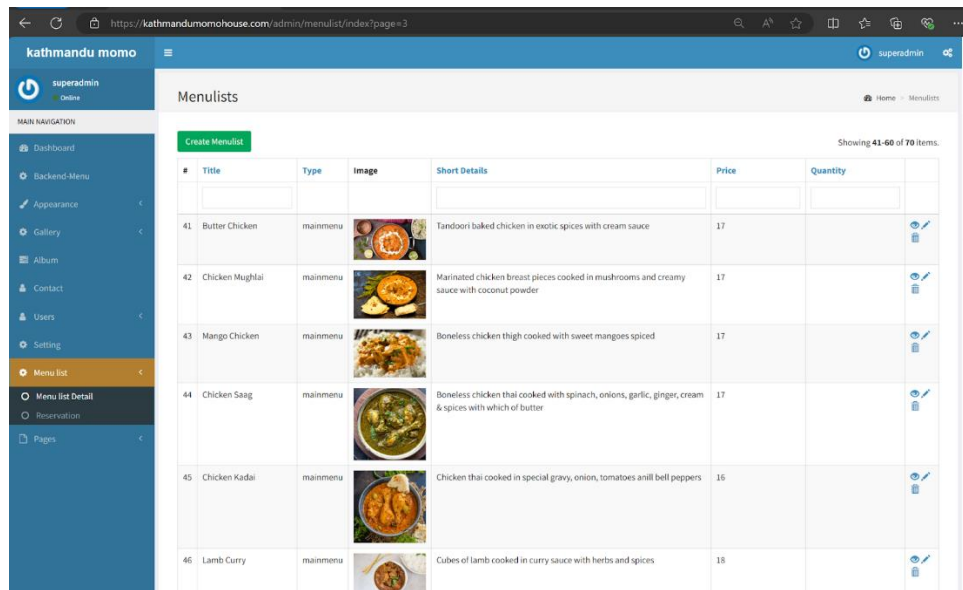
Figure 3.5: Navigate to Menu Item

After that, I have to create menu list. For that click on Create Menulist and add following details.

Figure 3.6: Navigate to Menu Item

After that saving the details the data entry job is completed.

Task 2: Load Testing of KATHMANDU MOMO using JMeter

Firstly, opening JMeter by going into terminal and typing jmeter to access it.
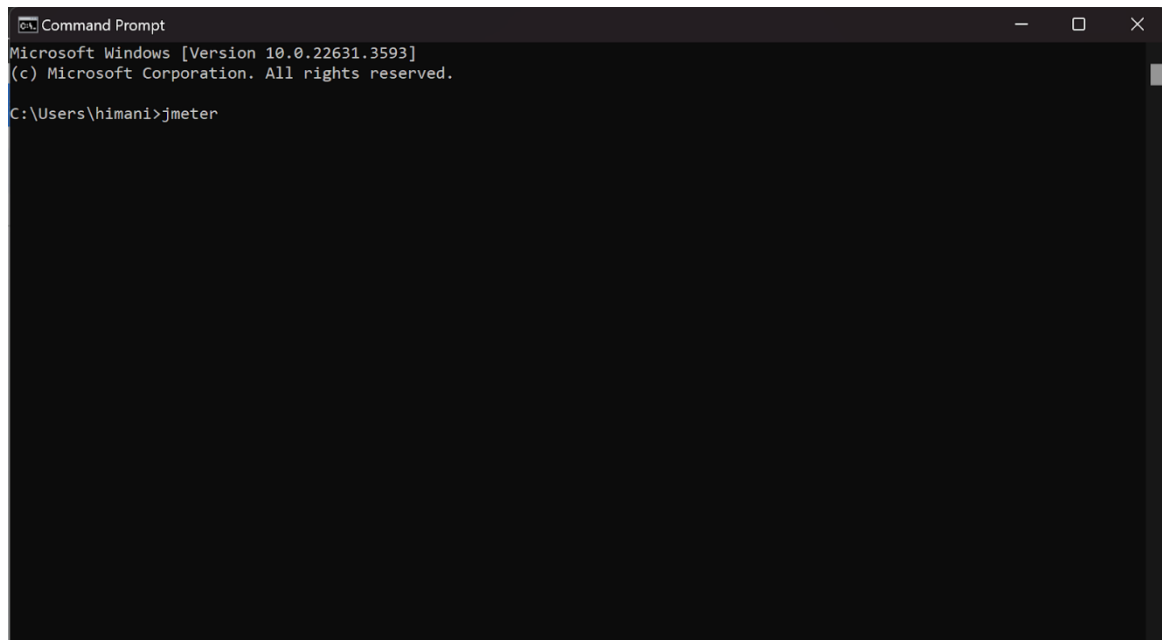
Figure 3.7: Opening JMeter for Load Testing

After opening the the JMeter, naming first test plan as:
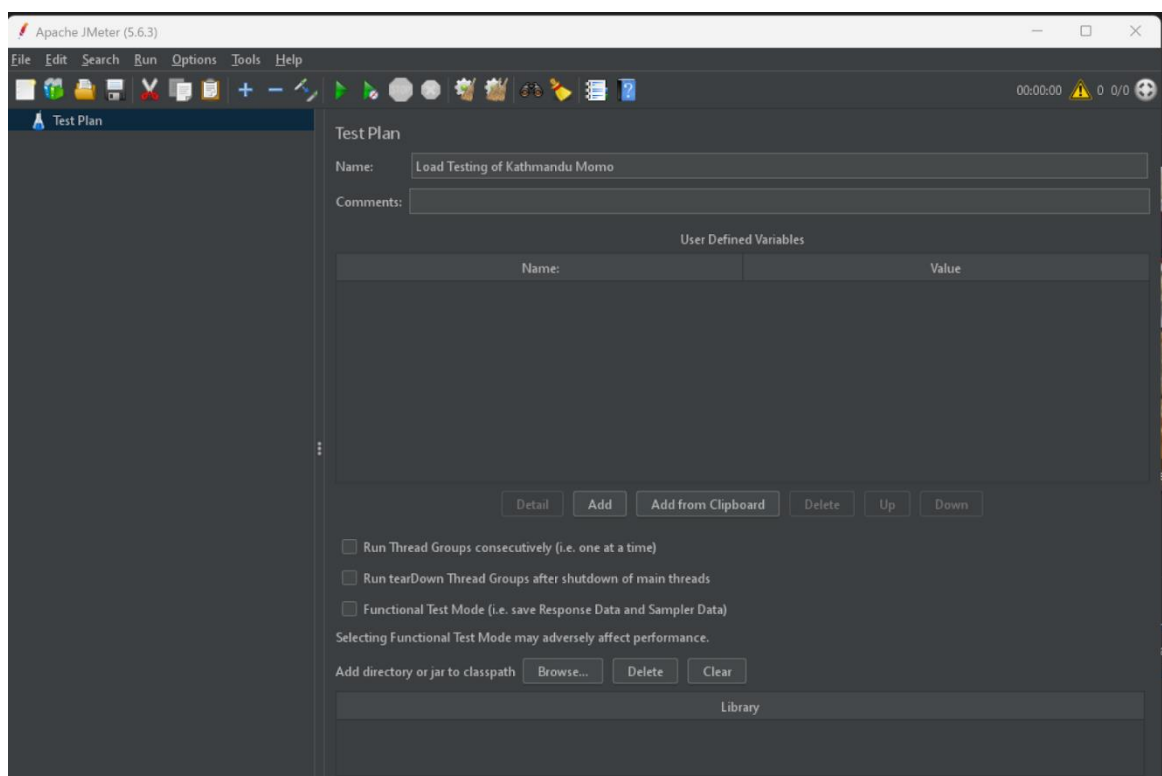
Figure 3.8: Creating first test plan

After that adding the thread group as
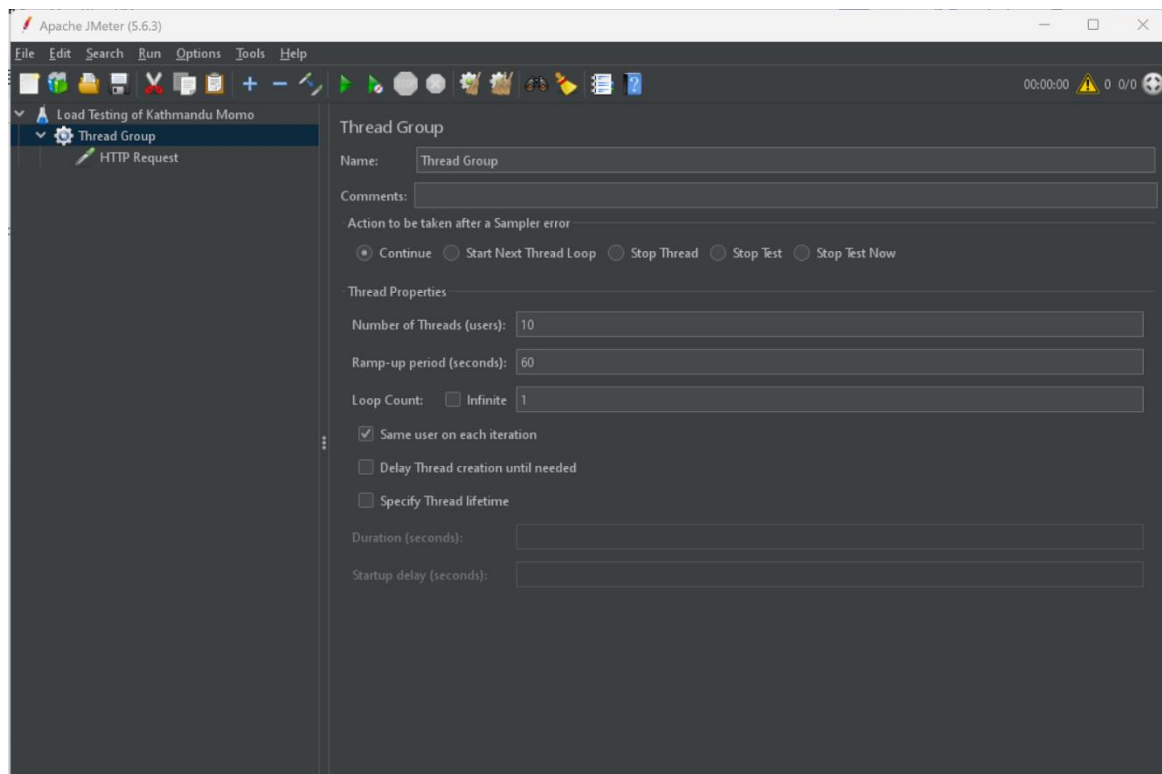
Figure 3.9: Creating a simple Thread Group

Now creating a HTTP Request for the site of Kathmandu Momo as:
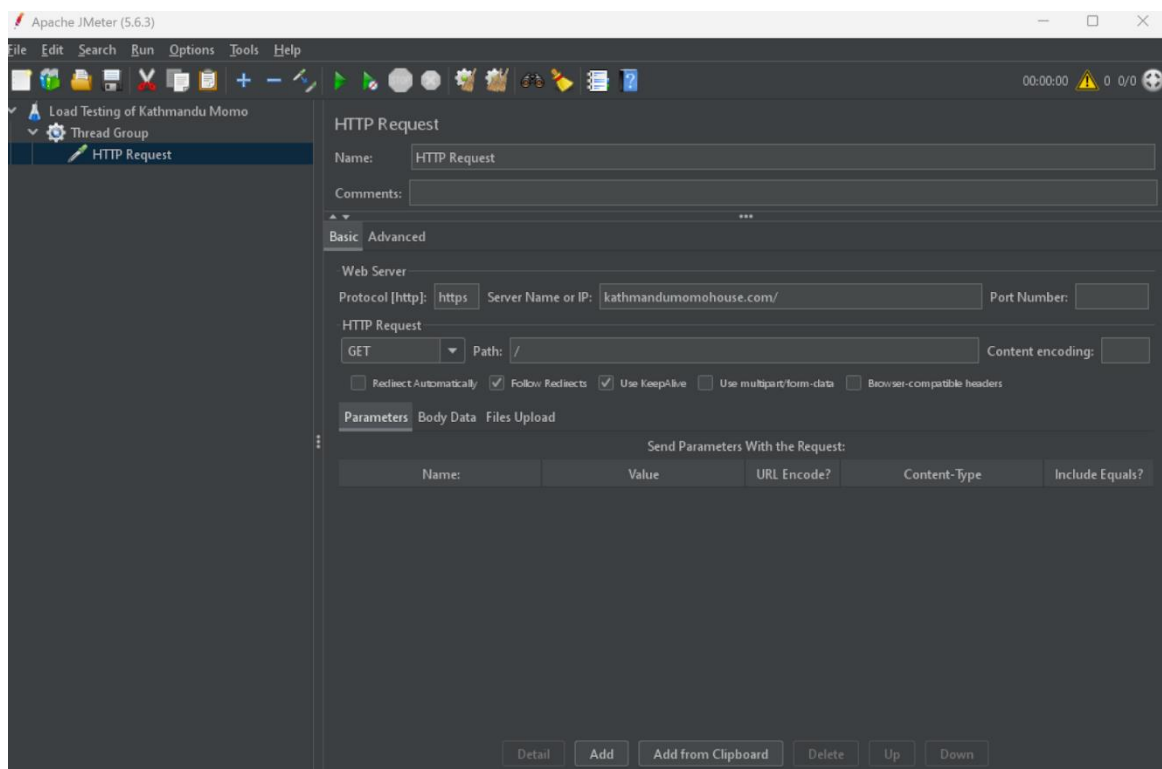
Figure 3.10: Creating HTTP Request

Now adding a report result tree and running the test.
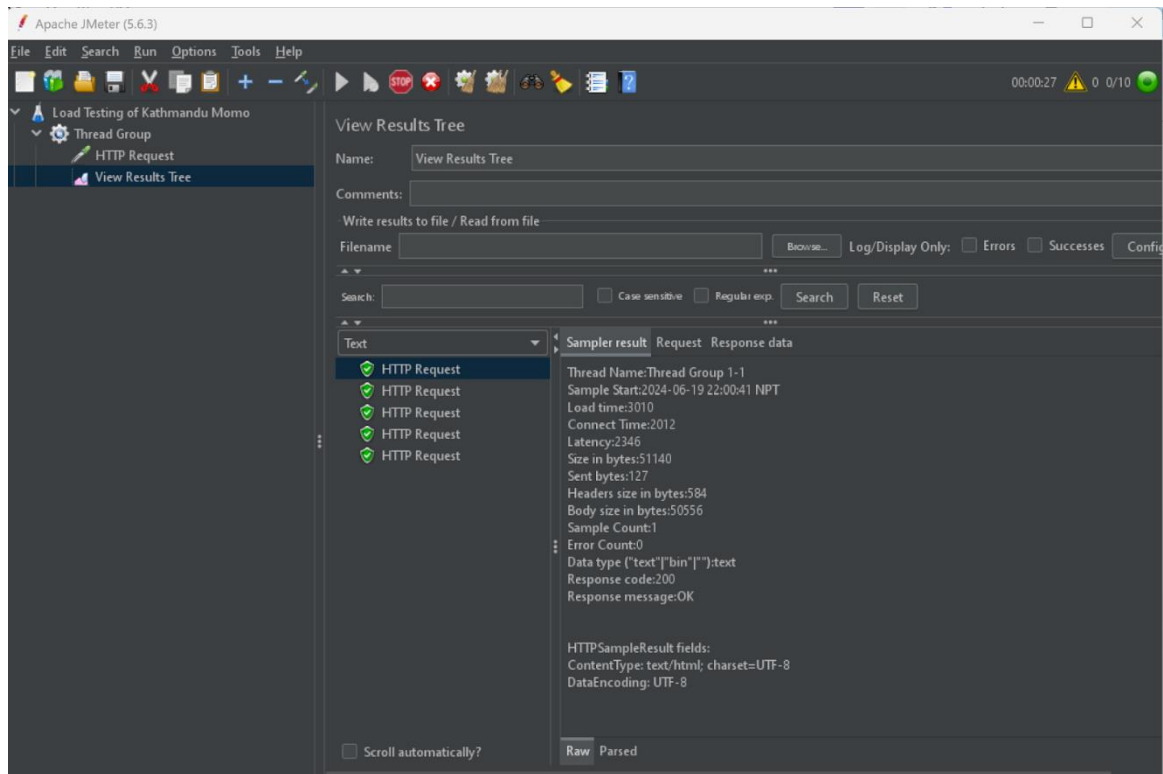
Figure 3.11: Running the Task and Viewing Result

CHAPTER 4 : CONCLUSION AND LEARNING OUTCOMES

4.1 Conclusion

My internship at Bent Ray Technologies has been an invaluable experience that provided me with a comprehensive understanding of the Quality Assurance (QA) processes in a professional IT environment. Working under the guidance of experienced professionals, I had the opportunity to apply theoretical knowledge in real-world scenarios, enhancing my technical and analytical skills. The collaborative work environment allowed me to learn the importance of teamwork, effective communication, and problem-solving in ensuring the delivery of high-quality software products. This internship has not only strengthened my foundation in QA practices but also motivated me to pursue further specialization in this field.

4.2 Learning Outcomes

As an intern at Bent Ray Technologies, I had the opportunity to immerse myself in the Quality Assurance (QA) department, where I gained valuable hands-on experience and insights. Throughout my internship, I was able to apply theoretical knowledge in real-world scenarios, work alongside experienced professionals, and develop essential skills that will benefit my future career. The key learning outcomes from this experience include:

- **Technical Skills**: Acquired hands-on experience with testing tools and methodologies, including functional, regression, and automated testing.
- **Defect Management**: Learned to identify, document, and track software defects using JIRA.
- **Team Collaboration**: Improved ability to work effectively with cross-functional teams, emphasizing clear communication and teamwork.
- **Problem-Solving**: Enhanced problem-solving skills by analysing test results and providing solutions to improve software performance.
- **Professional Insights**: Gained knowledge of industry standards and best practices in QA, preparing for future roles in software testing.

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APPENDICES

SNAPSHOTS

Figure A.1 Company's Website Homepage

Figure A.2 Company's Logo

Figure A.3 AccSwift Customer List Page

Figure A.4 FlexYear HRMS