

# **IT314**

## **Software Engineering**



### **Group 5**

### **Hostel Management System**

### **Non-Functional Testing**

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Date: 24/04/2023

## **1) Security:**

- Authentication: Our hostel management system has a secure authentication process to ensure only authorized users of the organization such as students and admin has access to the system.
- Encryption: All the sensitive data such as user credentials is encrypted while storing into MongoDB server using the inbuilt encryption library called 'bcrypt'.
- Environment Variables: Implemented Donenv package to store environment variables including MongoDB connection URL, port number etc.

## **2) Reliability:**

- Upto 200 authorized users, our system ensures that more than 95% of simultaneous users can access this software system whenever needed without crashing the server or slowing down significantly.
- Using the paid deployment services, we can improve this number significantly and also make this system more reliable.
- The localhost version is reliable for more than 1000 simultaneous users with 100% availability of the system.

## **3) Availability:**

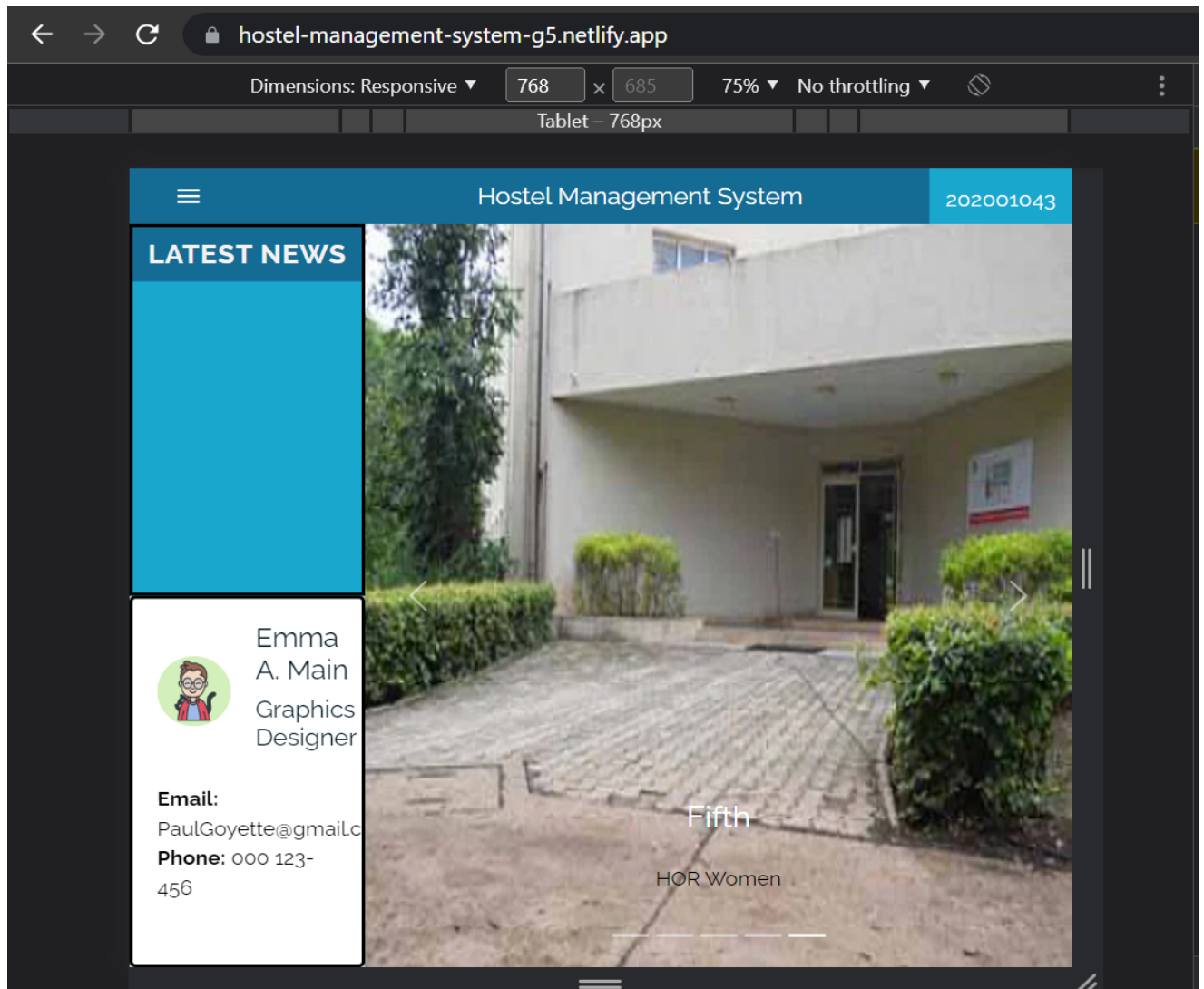
- The system is available 24 hours a day and 7 days a week and accessible from anywhere using any device with internet access.
- User can access this system with a minimum response time of 5 seconds for all user actions like login, view entire list of notices or complaints etc.

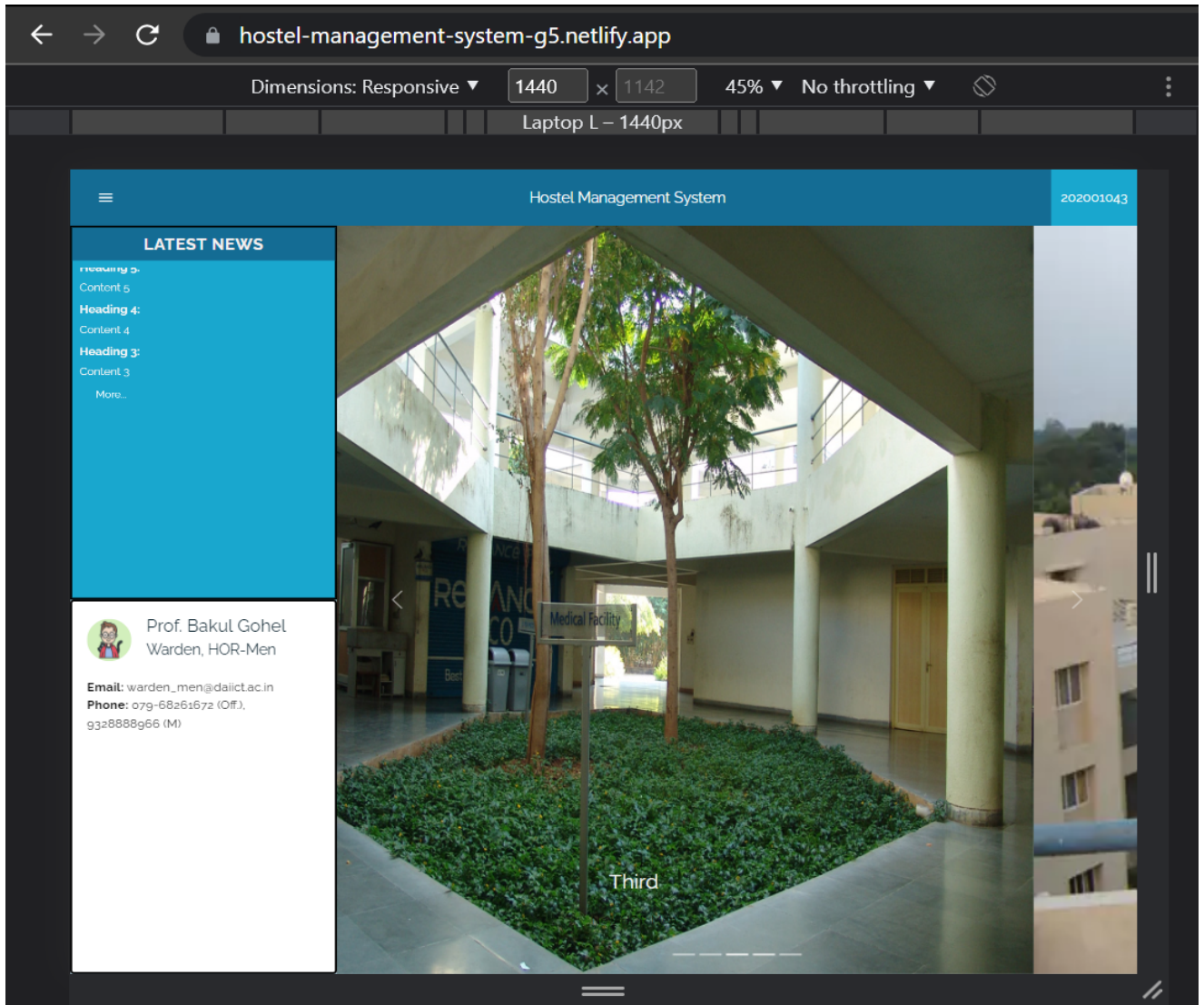
## **4) Flexibility:**

- The system flexible in adding any future changes in functionalities according to the organization's need.

## 5) Responsiveness :

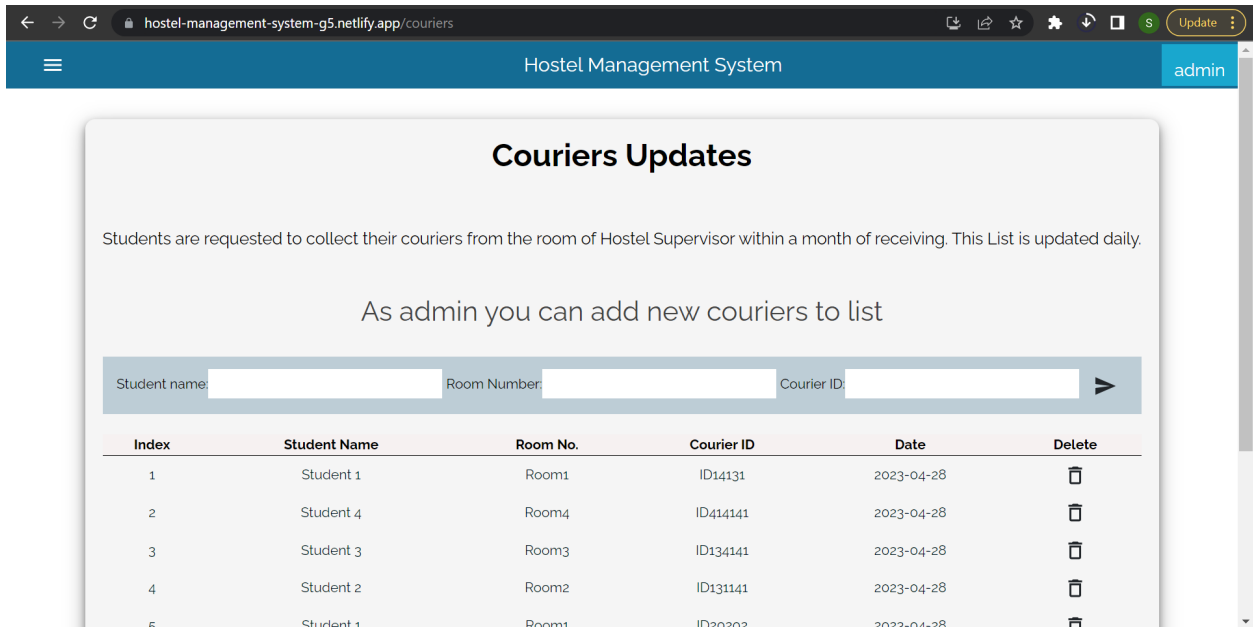
- The system is responsive so the users can interact with the system easily.
- The system is platform-independent, meaning user can use this system on any different operating systems such as macOS, Windows, and Linux.





## 6) Reusability:

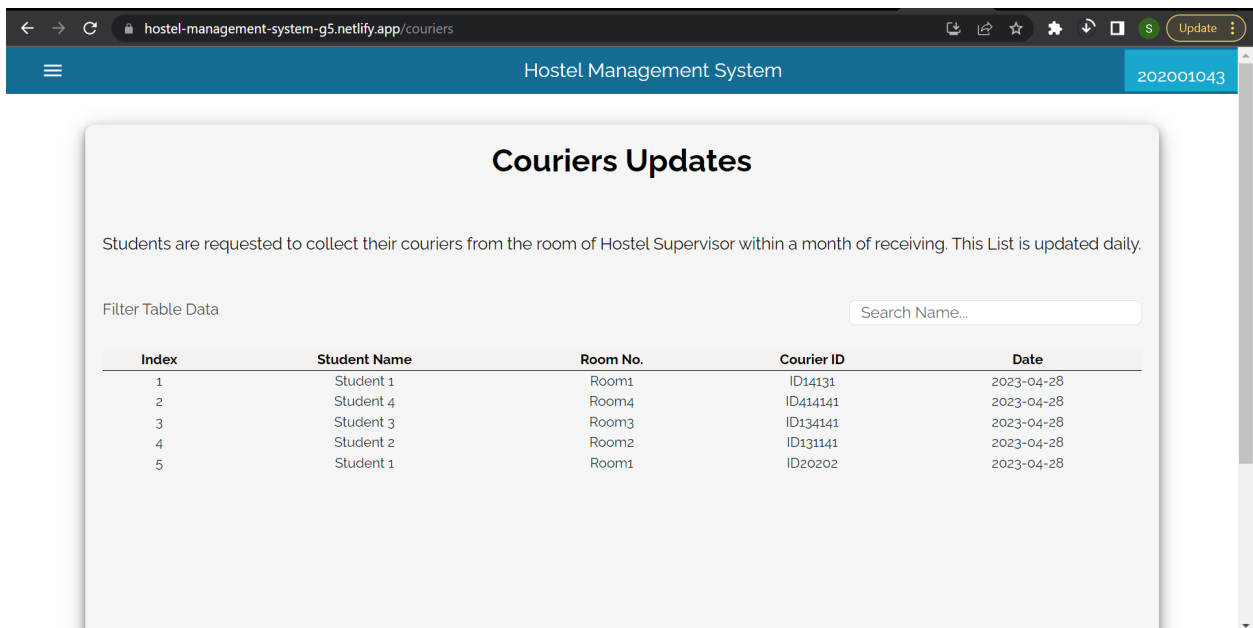
- We have built reusable components so that is functions differently according to the role of the user and its position in the organization.
- Couriers page for Admin:



The screenshot shows the 'Couriers Updates' page for an Admin user. The page has a blue header with the title 'Hostel Management System' and a user profile 'admin'. Below the header, the page title 'Couriers Updates' is centered. A message states: 'Students are requested to collect their couriers from the room of Hostel Supervisor within a month of receiving. This List is updated daily.' Below this, a text input field says 'As admin you can add new couriers to list'. A form for adding a new courier is visible, with fields for 'Student name', 'Room Number', and 'Courier ID', followed by a submit button. Below the form is a table with 6 columns: Index, Student Name, Room No., Courier ID, Date, and Delete. The table contains 5 rows of data.

Index	Student Name	Room No.	Courier ID	Date	Delete
1	Student 1	Room1	ID14131	2023-04-28	
2	Student 4	Room4	ID414141	2023-04-28	
3	Student 3	Room3	ID134141	2023-04-28	
4	Student 2	Room2	ID131141	2023-04-28	
5	Student 1	Room1	ID20202	2023-04-28	

- Couriers page for Students :



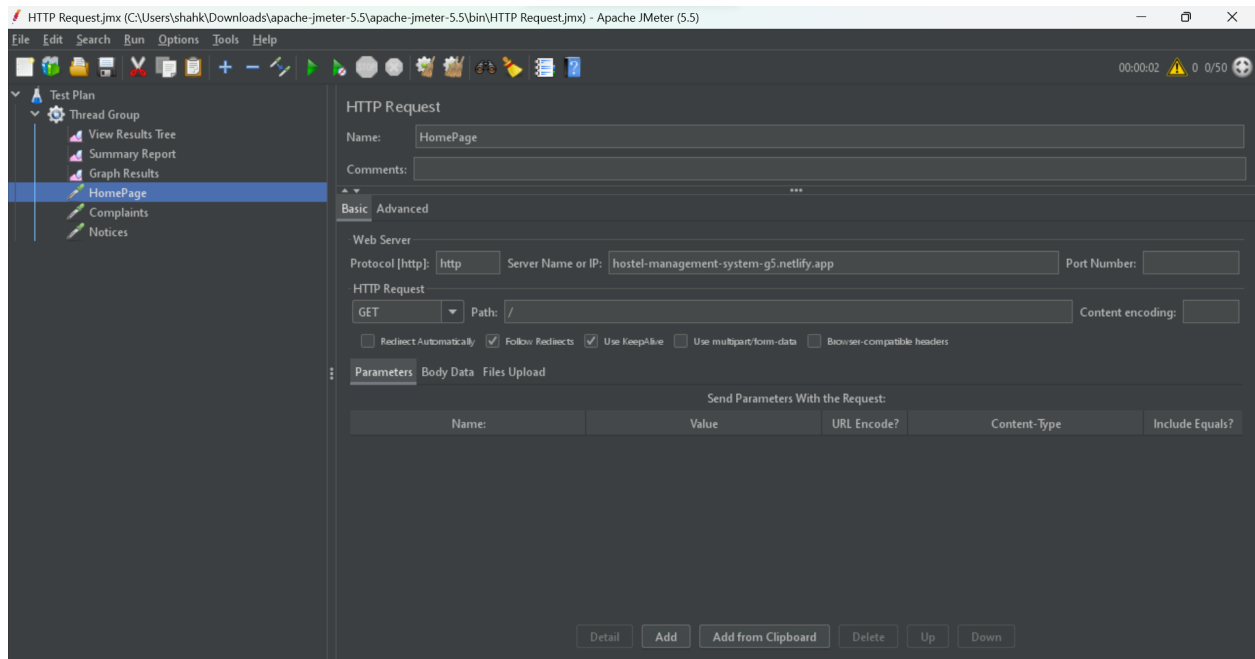
The screenshot shows the 'Couriers Updates' page for a Student user. The page has a blue header with the title 'Hostel Management System' and a user profile '202001043'. Below the header, the page title 'Couriers Updates' is centered. A message states: 'Students are requested to collect their couriers from the room of Hostel Supervisor within a month of receiving. This List is updated daily.' Below this, there is a 'Filter Table Data' section with a search input field labeled 'Search Name...'. Below the filter is a table with 5 columns: Index, Student Name, Room No., Courier ID, and Date. The table contains 5 rows of data.

Index	Student Name	Room No.	Courier ID	Date
1	Student 1	Room1	ID14131	2023-04-28
2	Student 4	Room4	ID414141	2023-04-28
3	Student 3	Room3	ID134141	2023-04-28
4	Student 2	Room2	ID131141	2023-04-28
5	Student 1	Room1	ID20202	2023-04-28

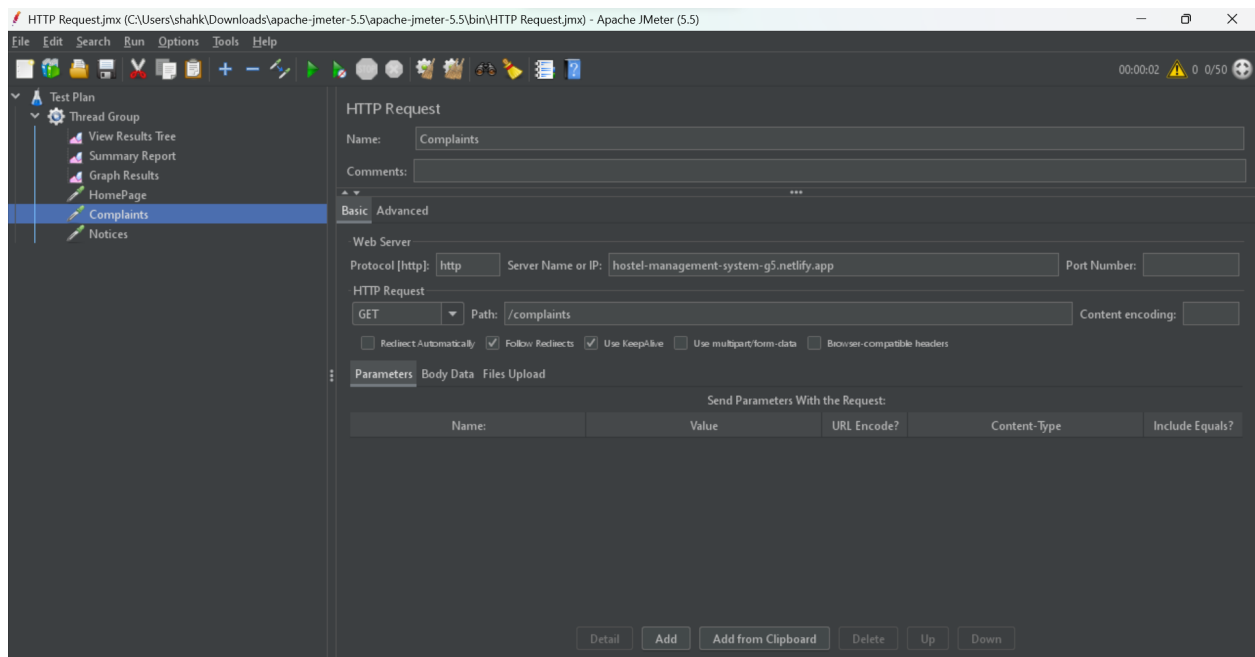
## 7) Performance Testing (Load testing) :

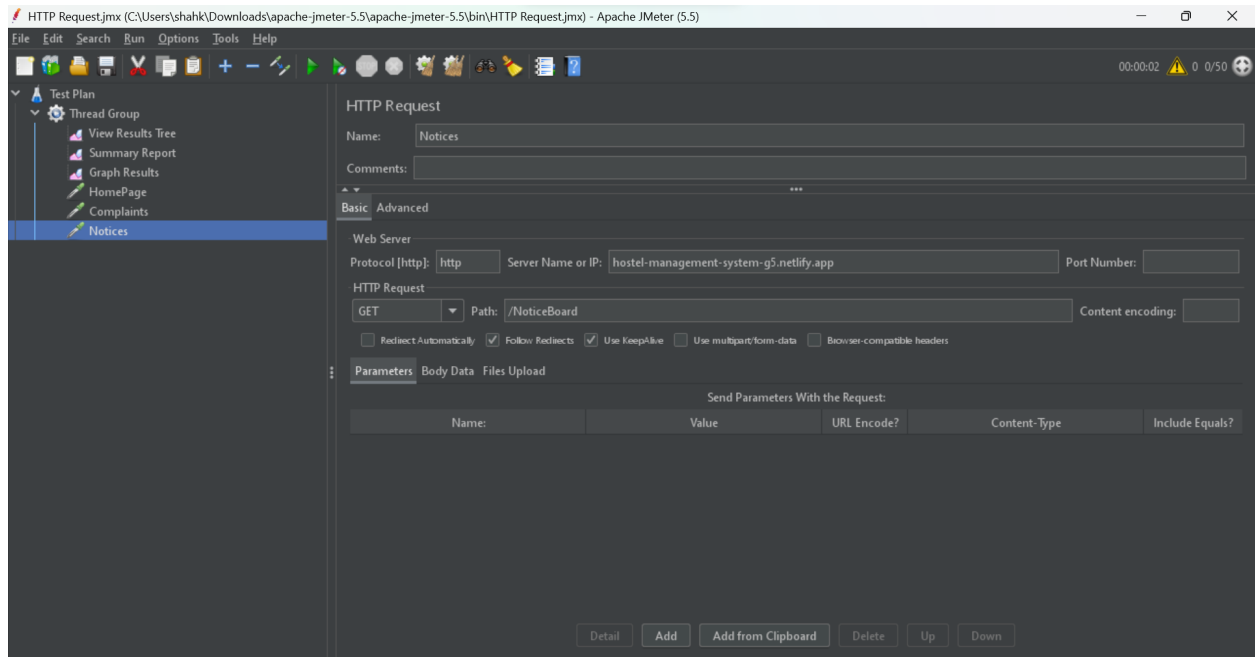
- We have used Apache Jmeter tool to test our system after deploying on free hosting provider - Netlify.

- Load Testing of Home page, Complaints page and Notices page.

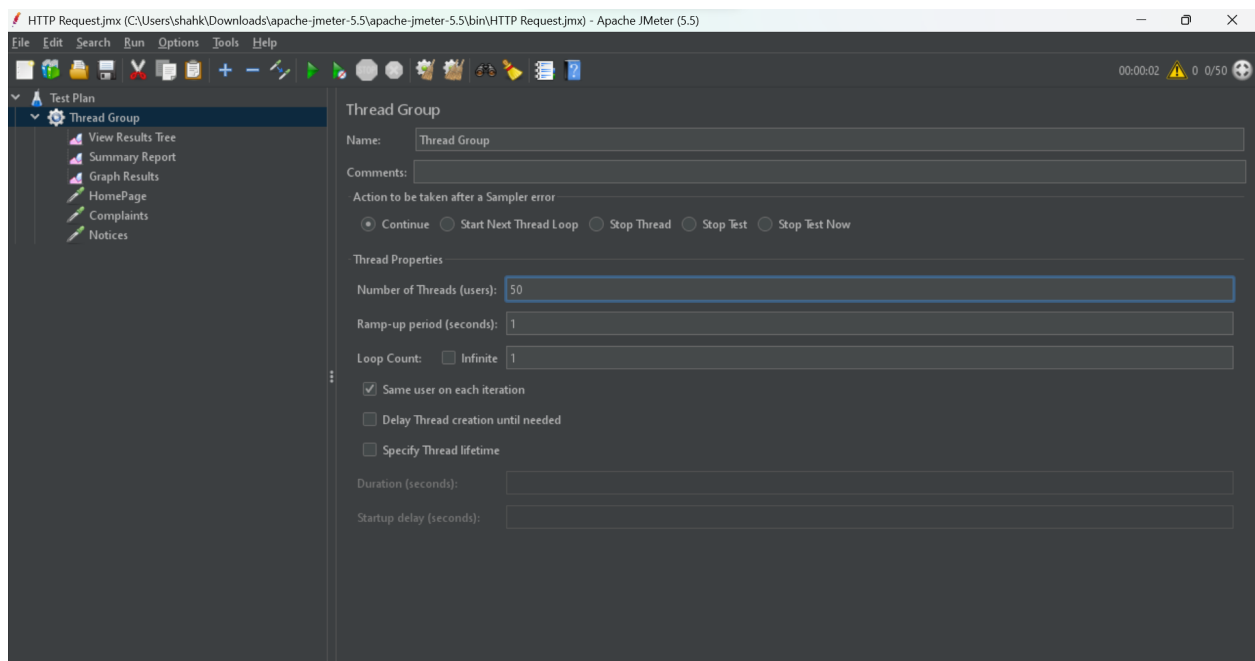


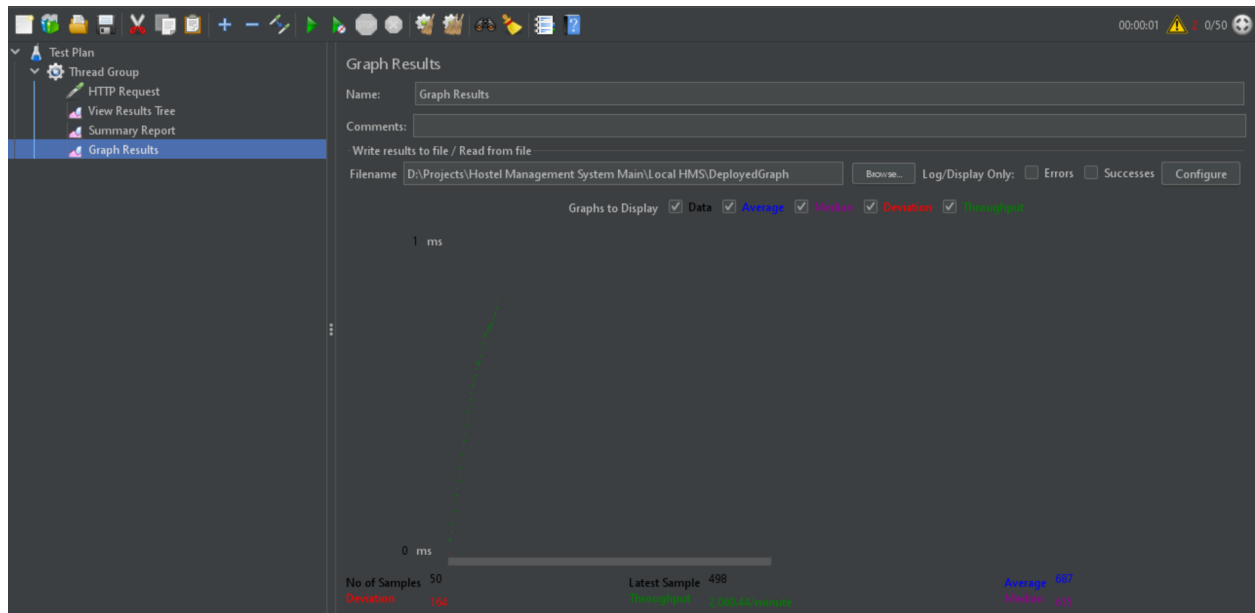
- Given appropriate paths to test the system,





- **Test 1** : For 50 simultaneous users on all three pages,





- **Test 2** : For 100 simultaneous users,

The screenshot shows the 'Thread Group' configuration window in Apache JMeter. The left sidebar lists the test plan components: Test Plan, Thread Group, View Results Tree, Summary Report, Graph Results, HomePage, Complaints, and Notices. The main area displays the configuration for the 'Thread Group'.

**Thread Group**

Name: Thread Group

Comments:

Action to be taken after a Sampler error:

- ☒ Continue
- ☐ Start Next Thread Loop
- ☐ Stop Thread
- ☐ Stop Test
- ☐ Stop Test Now

**Thread Properties**

Number of Threads (users): 100

Ramp-up period (seconds): 1

Loop Count: ☐ Infinite 1

☒ Same user on each iteration

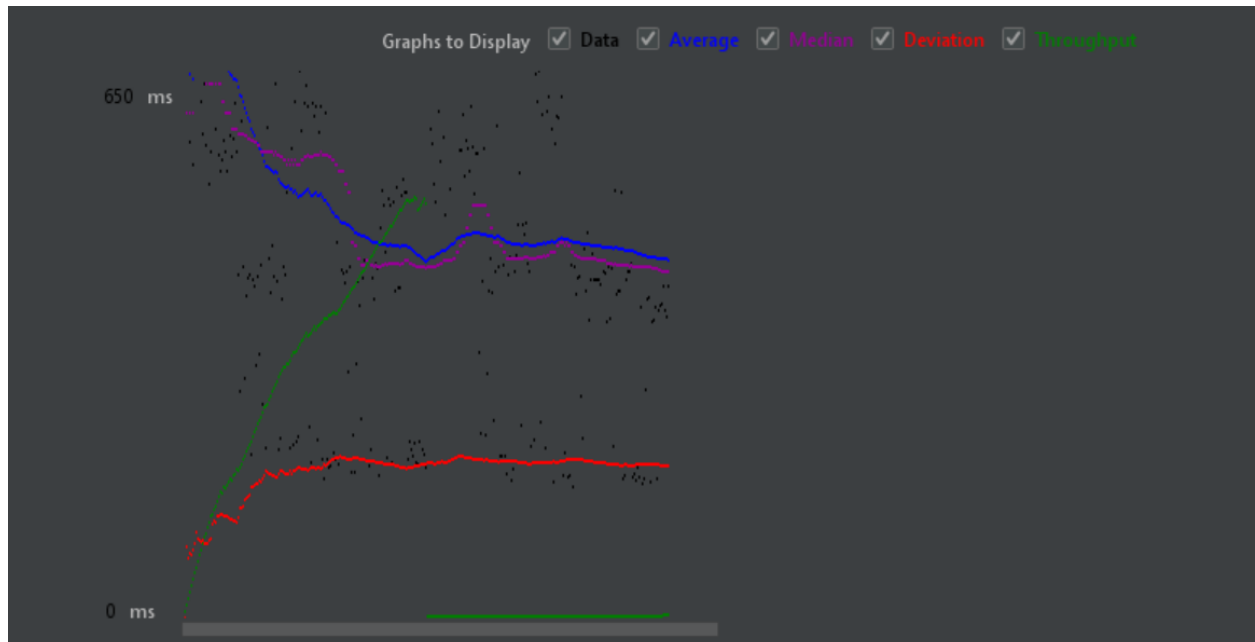
☐ Delay Thread creation until needed

☐ Specify Thread lifetime

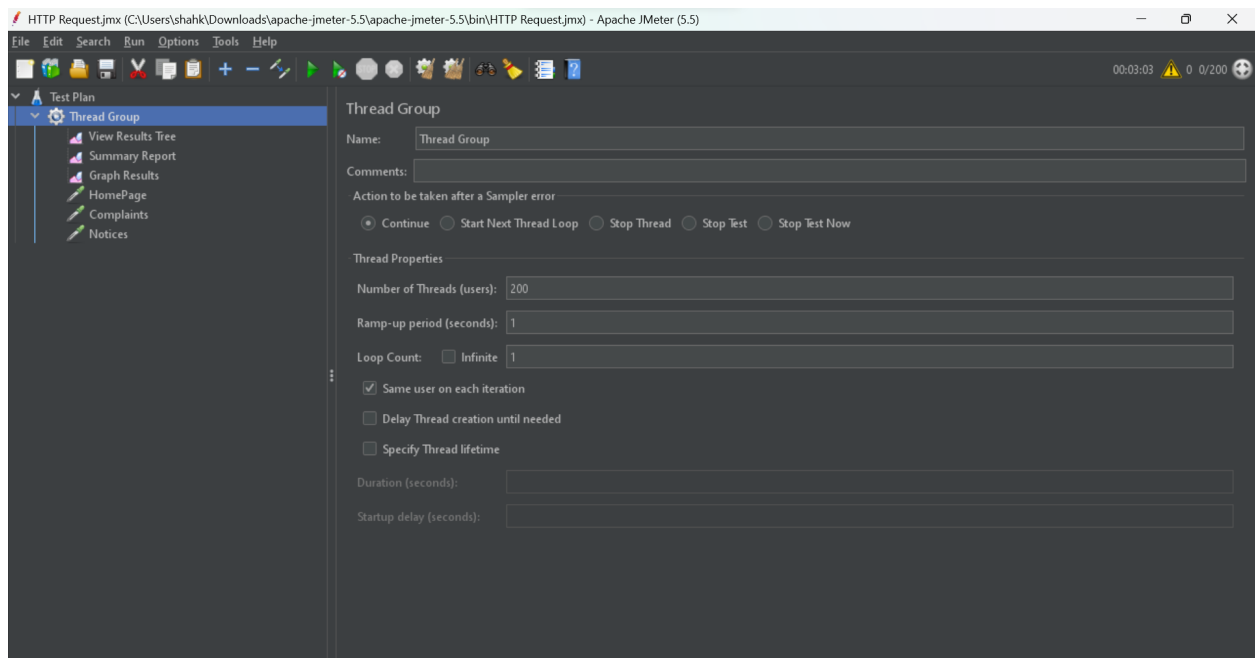
Duration (seconds):

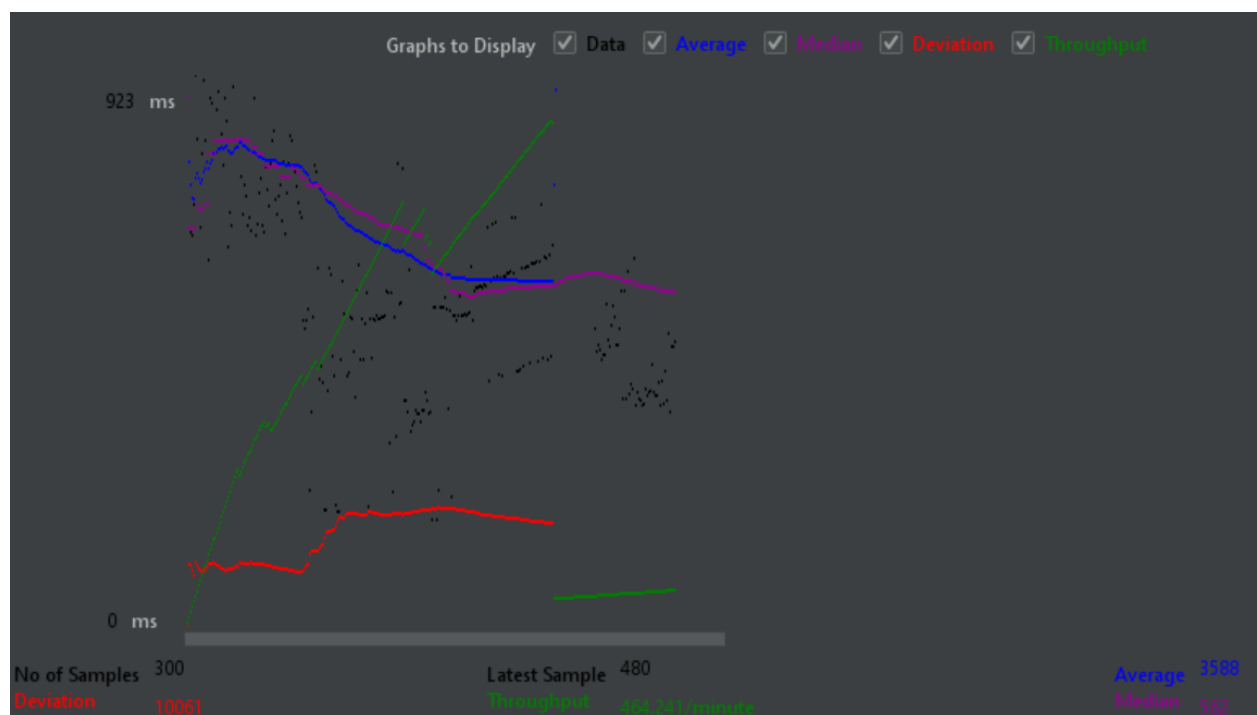
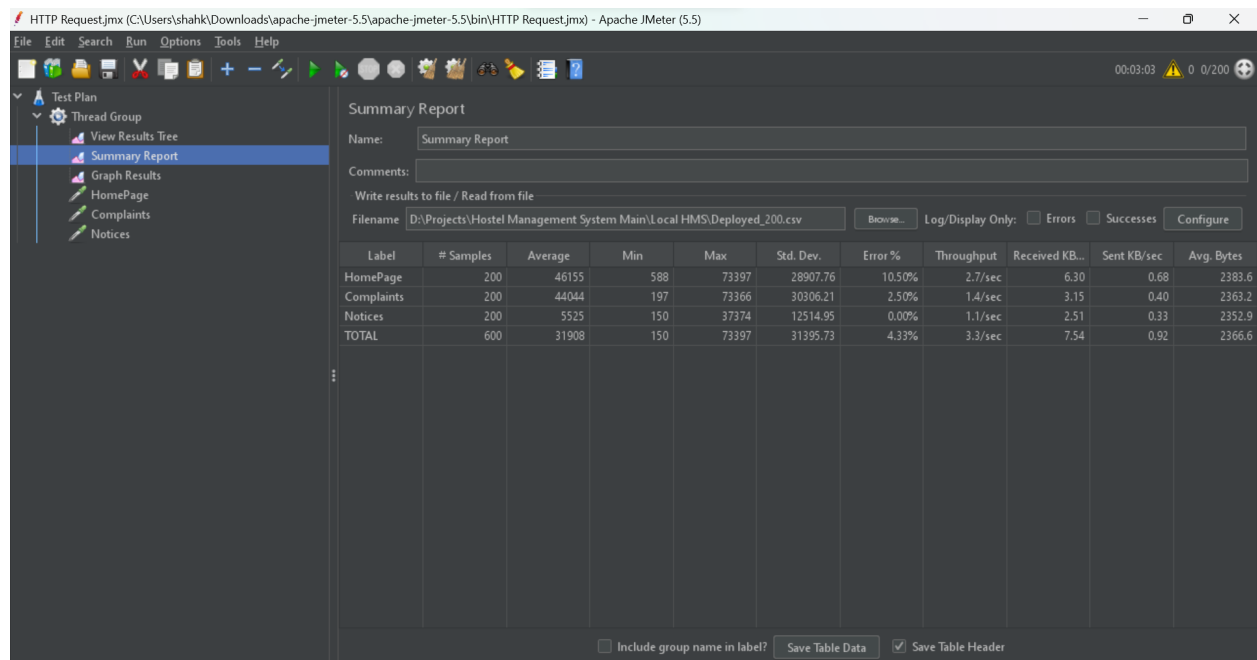
Startup delay (seconds):





- Test 3 : For 200 simultaneous users,





- We have provides the whole summery report of this testing in excel files of all three tests and also for the deployed and localhost version.