

Birla Institute of Technology and Science, Pilani



INTRODUCTION TO DEVOPS

Assignment- Part A

Team No: 2

Topic: DEVOPS LIVE PROJECT

Sl. No	Team Members	BITS ID
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PART-A (Project Description)

Project Title: DonationDrive

Project Description:

DonationDrive is a powerful “Online Crowd Funding” based web application, the objective of the project is to design and implement the application that allows users to raise funds for charity or medical costs.

It has the following features:

1. **Login/Sign Up:** Users can Sign up/Login before creating a post or making a donation.
2. **Create Post:** It allows the user to create a post for the donation.
3. **Give Donation:** The user can donate a certain amount to the post (dummy implementation).
4. **Check Donations:** Users can check the donations made and who donated how much and to whom.
5. **Check fundraisers:** Users can check all the fundraisers and donate the one they feel to.

Technologies:

- **Frontend:** ReactJS, Jest
- **Backend:** Java, SpringBoot
- **Testing:** Junits

Tools Used:

- Git & Github
- Maven
- Sonarqube
- Selenium

IDE:

- IntelliJ / Visual Studio Code

Platform:


- Web browser

Project Demo:

Main Page

D Drive

[Browse Fundraisers](#)[Browse Donators](#)[START A FUNDRAISER](#)[LOGOUT](#)



Need Funds to Pay For a Medical Emergency or Social Cause?

0%
PLATFORM FEE

10k+
DONORS

1k+
FUNDRAISERS

Start a Fundraiser for FREE

Recent Fundraisers

View the fundraisers that are most recently posted

obesity.

G

Gourab Mukherjee

₹5,00,000 Raised out of ₹1,00,00,000

8 days left

DONATE

SHARE

obesity.

G

Gourab Mukherjee

₹1,00,0,000 Raised out of ₹1,00,00,000

8 days left

DONATE

SHARE

obesity.

G

Gourab Mukherjee

₹1,00,00,000 Raised out of ₹1,00,00,000

8 days left

DONATE

SHARE

obesity.

G

Gourab Mukherjee

₹2,00,000 Raised out of ₹1,00,00,000

8 days left

DONATE

SHARE


Start a Fundraiser in three simple steps

- **Start your fundraiser**
It'll take only 2 minutes. Just tell us a few details about you and the ones you are raising funds for.
- **Share your fundraiser**
All you need to do is share the fundraiser with your friends and family. In no time, support will start pouring in.
- **Withdraw Funds**
The funds raised can be withdrawn without any hassle directly to your bank account.


Start a Fundraiser for FREE

Causes you can raise funds for


Be it for a personal need, social cause or a creative idea - you can count on us for the project that you want to raise funds for.




Medical




Children



Education



Animal



Others

SignUp/Login

SIGNUP

LOGIN

First name*

mike

Last name*

tyson

Email*

mike.tyson@boxer.com

Password*

SIGNUP

Raise Funds

Enter Details for fundraising

Title*

cancer

Cause*


sunlight

Needed Amount*

10000000

End Date*

10/02/2021



Category*

Animal

RAISE FUNDS

Donators

Donators

A list of great people who helped the needy.

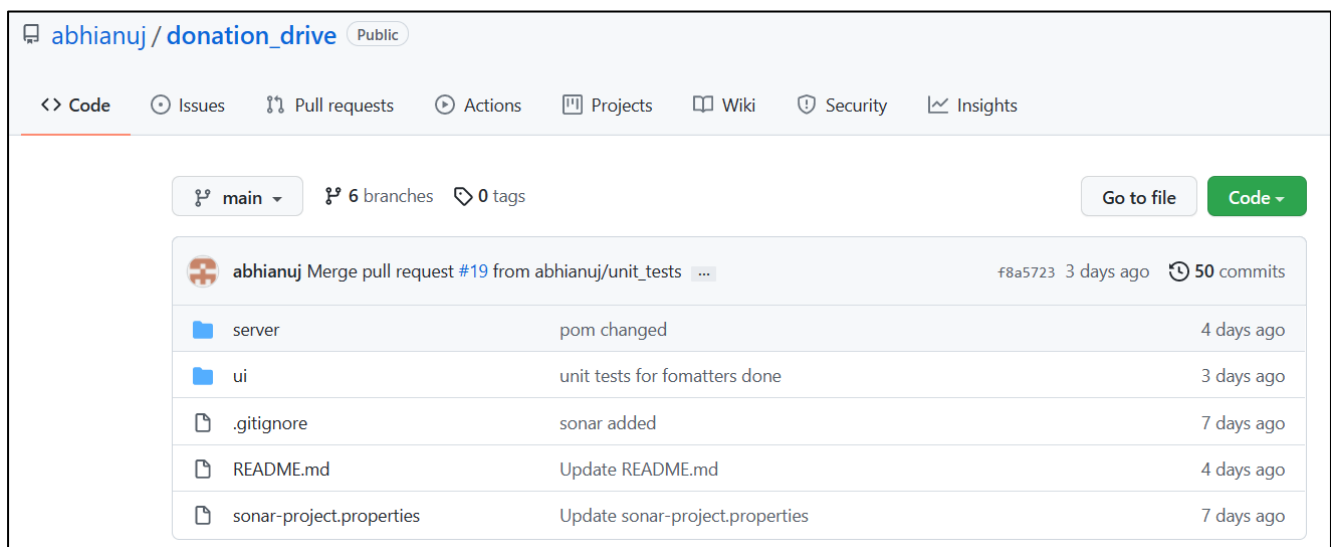
Name	Email	Amount	Donated to
A K	abhi@gmail.op	10000000	G M
A K	abhi@gmail.op	10000	G M
A K	abhi@gmail.op	200000	G M
A K	abhi@gmail.op	1000000	G M
A K	abhi@gmail.op	100000000	G M
A K	abhi@gmail.op	100000000	G M
A K	abhi@gmail.op	1000000	G M
A K	abhi@gmail.op	10000000	G M
A K	abhi@gmail.op	200000	G M
A K	abhi@gmail.op	500000	G M

PART – B (DevOps tools without Jenkins)

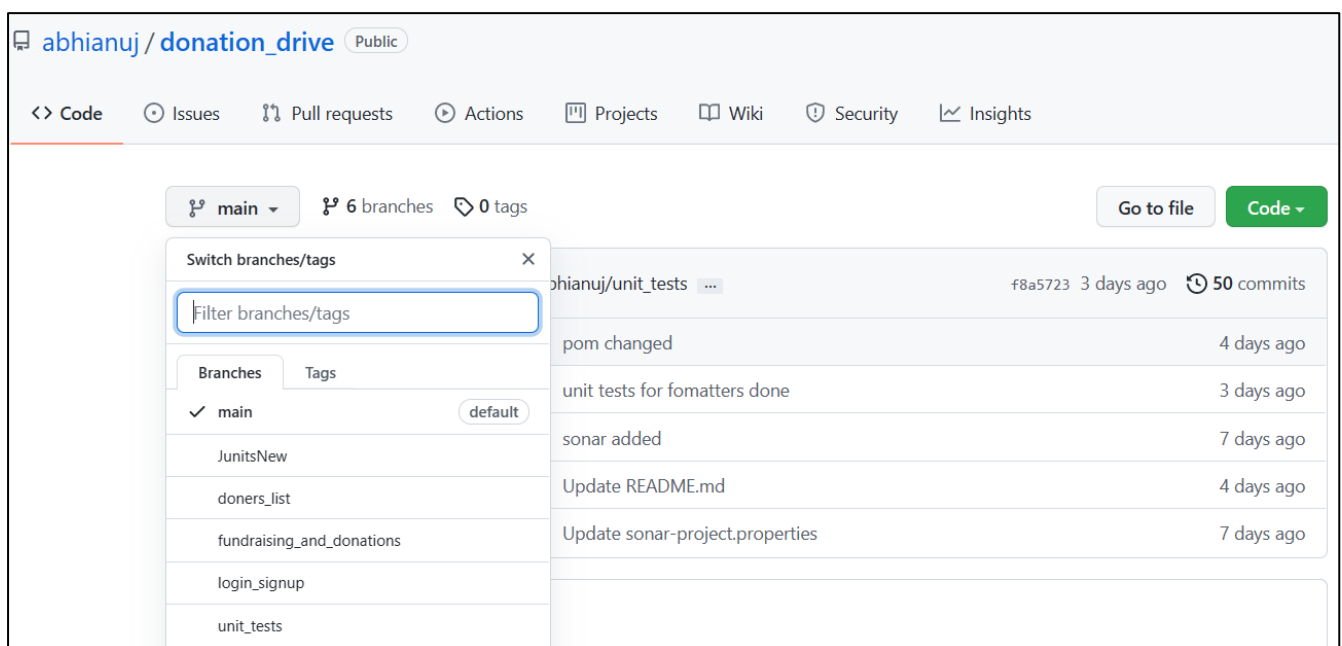
Source Code Management – Git & GitHub:

- For Source code management we used **Git and GitHub**.
- Git is a version control system that lets you manage and keep track of source code history.
- We have created different branches for different features which are depicted below.

GitHub Repository: https://github.com/abhianuj/donation_drive.git




































Branches:



Commits:

- Some commits can be seen below.

Commits on Oct 14, 2021			
Merge pull request #16 from abhianuj/JunitsNew ...	Verified	 2c1bc79	
 Gaurav-Utpal committed 4 days ago			
pom changed		 82d7c7b	
 Gaurav-Utpal committed 4 days ago			
JUnits of Utils		 eb60e9d	
 Gaurav-Utpal committed 4 days ago			
Update README.md	Verified	 1a597b4	
 abhianuj committed 4 days ago			
Update README.md	Verified	 6781525	
 abhianuj committed 4 days ago			
Update README.md	Verified	 1cc4911	
 abhianuj committed 4 days ago			
Merge pull request #15 from abhianuj/fundraisers ...	Verified	 517969c	
 abhianuj committed 4 days ago			
CORS resolved by abhijeet		 ec21b72	
 I524896 committed 4 days ago			
Update README.md	Verified	 4129568	
 abhianuj committed 4 days ago			
Create README.md	Verified	 00f09ca	
 abhianuj committed 4 days ago			
Merge pull request #13 from abhianuj/utpal_jpa ...	Verified	 8e0adb7	
 UTPAL-GAURAV committed 4 days ago			

Continuous Build Management - Maven:

- We have used Maven for maintaining the builds and dependencies of our project.
- Maven helped us in making our build process easy by hiding the complexities involved in maintaining the dependencies.

Pom.xml: (Depicting Our dependencies)

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3      xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
4      <modelVersion>4.0.0</modelVersion>
5      <parent>
6          <groupId>org.springframework.boot</groupId>
7          <artifactId>spring-boot-starter-parent</artifactId>
8          <version>2.4.4</version>
9          <relativePath/> <!-- lookup parent from repository -->
10     </parent>
11     <groupId>com.microservice</groupId>
12     <artifactId>fundraiser</artifactId>
13     <version>0.0.1-SNAPSHOT</version>
14     <name>fundraiser</name>
15     <description>Fund Raiser microservice</description>
16     <properties>
17         <java.version>11</java.version>
18     </properties>
19     <dependencies>
20         <dependency>
21             <groupId>io.springfox</groupId>
22             <artifactId>springfox-boot-starter</artifactId>
23             <version>3.0.0</version>
24         </dependency>
25         <dependency>
26             <groupId>org.springframework.boot</groupId>
27             <artifactId>spring-boot-starter-data-jpa</artifactId>
28         </dependency>
29         <dependency>
30             <groupId>org.springframework.boot</groupId>
```

```
31             <artifactId>spring-boot-starter-web</artifactId>
32         </dependency>
33
34     <dependency>
35         <groupId>com.h2database</groupId>
36         <artifactId>h2</artifactId>
37         <scope>runtime</scope>
38     </dependency>
39     <dependency>
40         <groupId>org.projectlombok</groupId>
41         <artifactId>lombok</artifactId>
42         <optional>true</optional>
43     </dependency>
44     <dependency>
45         <groupId>org.springframework.boot</groupId>
46         <artifactId>spring-boot-starter-test</artifactId>
47         <scope>test</scope>
48     </dependency>
49     <!-- <dependency>-->
50     <!-- <groupId>com.h2database</groupId>-->
51     <!-- <artifactId>h2</artifactId>-->
52     <!-- <scope>test</scope>-->
53     <!-- </dependency>-->
54     <dependency>
55         <groupId>junit</groupId>
56         <artifactId>junit</artifactId>
57         <scope>test</scope>
58     </dependency>
59 </dependencies>
```



```

60
61  <build>
62    <plugins>
63      <plugin>
64        <groupId>org.springframework.boot</groupId>
65        <artifactId>spring-boot-maven-plugin</artifactId>
66      <configuration>
67        <excludes>
68          <exclude>
69            <groupId>org.projectlombok</groupId>
70            <artifactId>lombok</artifactId>
71          </exclude>
72        </excludes>
73      </configuration>
74    </plugin>
75  </plugins>
76 </build>
77
78 </project>
79

```

Compilation using Maven (mvn compile):

```

$ mvn compile
[INFO] Scanning for projects...
[WARNING]
[WARNING] Some problems were encountered while building the effective model for com.microservice:fundraiser:
[WARNING] 'dependencies.dependency.(groupId:artifactId:type:classifier)' must be unique: com.h2database:h2:j
[WARNING]
[WARNING] It is highly recommended to fix these problems because they threaten the stability of your build.
[WARNING]
[WARNING] For this reason, future Maven versions might no longer support building such malformed projects.
[WARNING]
[INFO]
[INFO] -----< com.microservice:fundraiser >-----
[INFO] Building fundraiser 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ fundraiser ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 1 resource
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ fundraiser ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 21 source files to C:\Users\I524895\Documents\donation_drive\server\target\classes
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 8.607 s
[INFO] Finished at: 2021-10-20T18:37:26+05:30
[INFO]

```

Unit Testing using Maven (mvn test):

```
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.295 s - in com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Running com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.015 s - in com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Running com.microservice.fundraiser.controller.UserControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.076 s - in com.microservice.fundraiser.controller.UserControllerTest
[INFO] Results:
[INFO] Tests run: 10, Failures: 0, Errors: 0, Skipped: 0
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 13.004 s
[INFO] Finished at: 2021-10-20T18:38:31+05:30
[INFO] -----
```

Packaging using Maven (mvn package)

```
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.058 s - in com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Running com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.031 s - in com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Running com.microservice.fundraiser.controller.UserControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.082 s - in com.microservice.fundraiser.controller.UserControllerTest
[INFO] Results:
[INFO] Tests run: 10, Failures: 0, Errors: 0, Skipped: 0
[INFO] -----
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ fundraiser ---
[INFO] Building jar: C:\Users\I524895\Documents\donation_drive\server\target\fundraiser-0.0.1-SNAPSHOT.jar
[INFO] -----
[INFO] --- spring-boot-maven-plugin:2.4.4:repackage (repackage) @ fundraiser ---
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 11.536 s
[INFO] Finished at: 2021-10-20T18:39:23+05:30
[INFO] -----
```

Installing in Repository using maven (mvn install):

```
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.112 s - in com.microservice.fundraiser.controller.DonorControllerTest
[INFO] Running com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.014 s - in com.microservice.fundraiser.controller.PostsControllerTest
[INFO] Running com.microservice.fundraiser.controller.UserControllerTest
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.082 s - in com.microservice.fundraiser.controller.UserControllerTest
[INFO] Results:
[INFO] Tests run: 10, Failures: 0, Errors: 0, Skipped: 0
[INFO] -----
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ fundraiser ---
[INFO] --- spring-boot-maven-plugin:2.4.4:repackage (repackage) @ fundraiser ---
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @ fundraiser ---
[INFO] Installing C:\Users\I524895\Documents\donation_drive\server\target\fundraiser-0.0.1-SNAPSHOT.jar to C:\Users\I524895\.m2\repository\com\microservice\fundraiser\0.0.1-SNAPSHOT.jar
[INFO] Installing C:\Users\I524895\Documents\donation_drive\server\pom.xml to C:\Users\I524895\.m2\repository\com\microservice\fundraiser\0.0.1-SNAPSHOT.pom
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 12.094 s
[INFO] Finished at: 2021-10-20T18:40:34+05:30
[INFO] -----
```

Clean up using Maven (mvn clean):

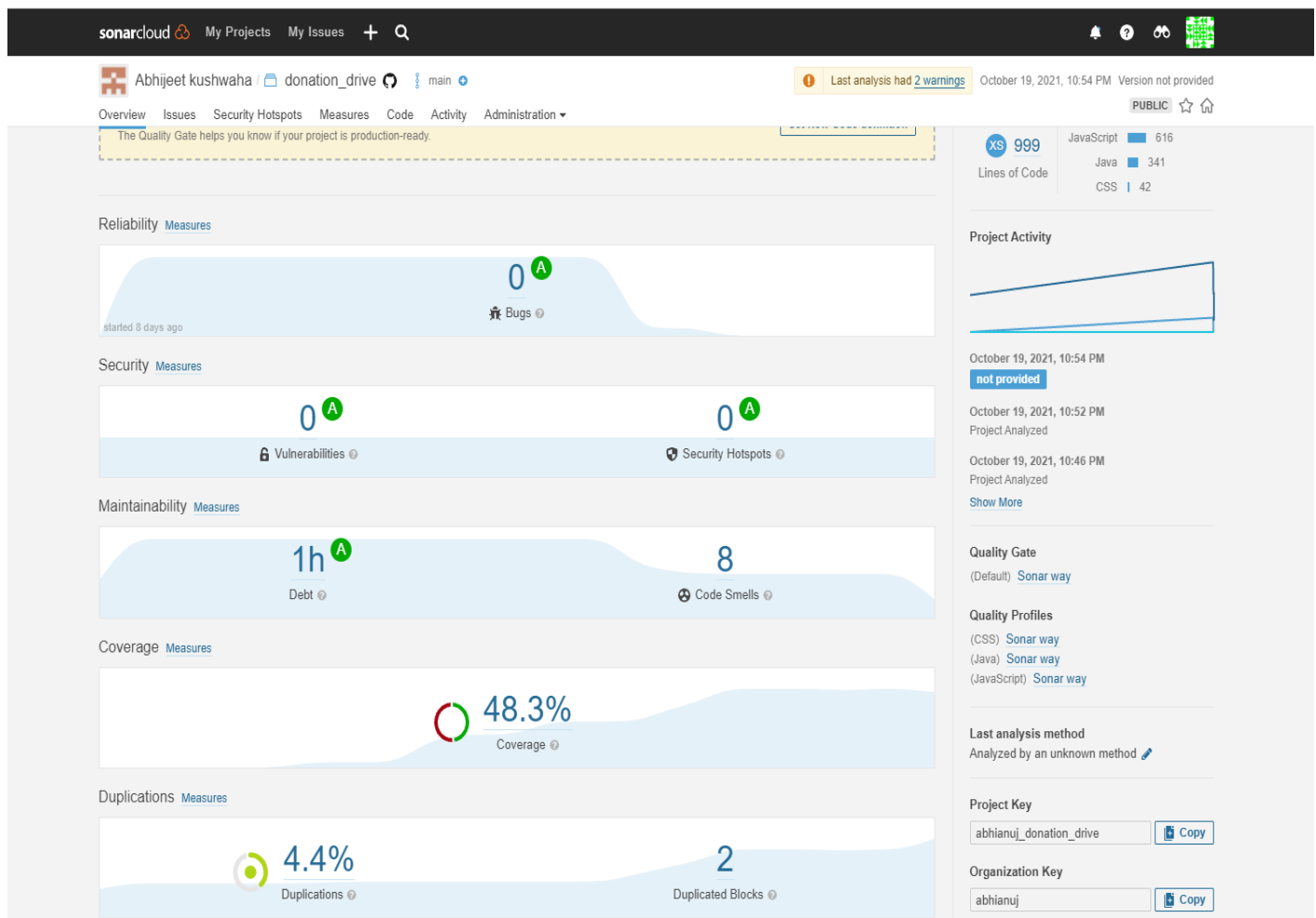
```
[INFO]
[INFO] -----< com.microservice:fundraiser >-----
[INFO] Building fundraiser 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ fundraiser ---
[INFO] Deleting C:\Users\I524895\Documents\donation_drive\server\target
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.529 s
[INFO] Finished at: 2021-10-20T18:41:22+05:30
[INFO] -----
```

Code Quality Management:

- For checking the quality of the code we have used SonarQube.
- We used sonar cloud server instead of deploying our own.
- We downloaded SonarScanner CLI tool as we had multimodule project with React and SpringBoot.
- From Sonar server we created new project and then generated token for our project.
- We setup coverage measurement tool jacoco for frontend and enabled jest coverage with reporting tool jest-sonar-reporter.
- We configured sonar-project.properties for multimodule project.

SonarQube Project URL:- https://sonarcloud.io/dashboard?id=abhianuj_donation_drive

Sonar Home Page



Code Smells to be fixed

Abhijeet kushwaha

donation_drive

main

Last analysis had 2 warnings

October 19, 2021, 10:54 PM

Version not provided

PUBLIC

Star

Home

Overview

Issues

Security Hotspots

Measures

Code

Activity

Administration

Filters

Clear All Filters

Type

CODE SMELL

Clear

Bug

0

Vulnerability

0

Code Smell

8

Ctrl + click to add to selection

Severity

Blocker

0

Minor

4

Critical

0

Info

0

Major

4

Resolution

Status

Security Category

Creation Date

Language

Rule

Tag

Directory

File

Assignee

Author

Bulk Change

to select issues

to navigate

1 / 8 issues

1h 5min effort

Rename this package name to match the regular expression `^[a-z_]+(\.[a-z_][a-z0-9_]*)?$`. Why is this an issue?

9 days ago

L1

No tags

Code Smell

Minor

Open

Not assigned

10min effort

Comment

server/...microservice/fundraiser/Utils/PostMapper.java

Rename this package name to match the regular expression `^[a-z_]+(\.[a-z_][a-z0-9_]*)?$`. Why is this an issue?

9 days ago

L1

No tags

Code Smell

Minor

Open

Not assigned

10min effort

Comment

server/...microservice/fundraiser/Utils/UserMapper.java

Rename this package name to match the regular expression `^[a-z_]+(\.[a-z_][a-z0-9_]*)?$`. Why is this an issue?

9 days ago

L1

No tags

Code Smell

Minor

Open

Not assigned

10min effort

Comment

server/...microservice/fundraiser/Utils/UserMapper.java

This block of commented-out lines of code should be removed. Why is this an issue?

2 hours ago

L16

No tags

Code Smell

Major

Open

Not assigned

5min effort

Comment

server/.../fundraiser/controller/UserController.java

This block of commented-out lines of code should be removed. Why is this an issue?

9 days ago

L32

No tags

Code Smell

Major

Open

Not assigned

5min effort

Comment

server/.../fundraiser/controller/UserController.java

Remove this useless assignment to variable `"setDonateld"`. Why is this an issue?

6 days ago

L31

No tags

Code Smell

Major

Open

Not assigned

15min effort

Comment

ui/src/Components/Donate.js

Remove the declaration of the unused `'setDonateld'` variable. Why is this an issue?

6 days ago

L31

No tags

Code Smell

Minor

Open

Not assigned

5min effort

Comment

ui/src/Components/Donate.js

Remove this commented out code. Why is this an issue?

6 days ago

L75

No tags

Code Smell

Major

Open

Not assigned

5min effort

Comment

ui/src/Components/Donate.js

8 of 8 shown

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Current Code Coverage

donation_drive

View as

List

to select files

to navigate

15 files

Coverage 48.3%

	Coverage	Uncovered Lines	Uncovered Conditions
ui/src/Components/Content.js	0.0%	18	—
ui/src/Components/Donate.js	0.0%	18	—
ui/src/Components/Donators.js	0.0%	8	—
ui/src/Components/FundRaisers.js	0.0%	18	—
ui/src/Components/Home.js	0.0%	3	—
ui/src/Components/HowItWorksTimeline.js	0.0%	3	—
ui/src/Components/RecentFundRaiserCards.js	0.0%	23	—
ui/src/reportWebVitals.js	0.0%	8	—
server/src/main/java/com/microservice/fundraiser/Utils/UserMapper.java	0.0%	6	—
server/src/main/java/com/microservice/fundraiser/controller/DonorController.java	70.0%	7	5
server/src/main/java/com/microservice/fundraiser/controller/PostsController.java	85.2%	2	2
server/src/main/java/com/microservice/fundraiser/Utils/DonationMapper.java	100%	0	—
ui/src/Utils/formatter.js	100%	0	0
server/src/main/java/com/microservice/fundraiser/Utils/PostMapper.java	100%	0	—
server/src/main/java/com/microservice/fundraiser/controller/UserController.java	100%	0	0

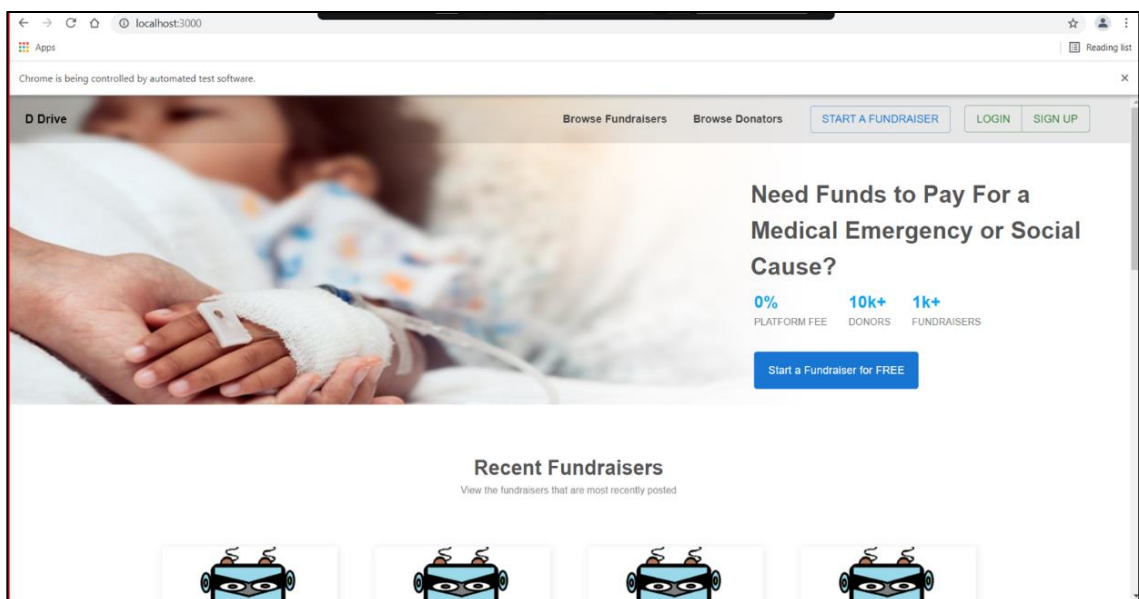
Automated Testing Framework –

1. Selenium – For Web Applications:

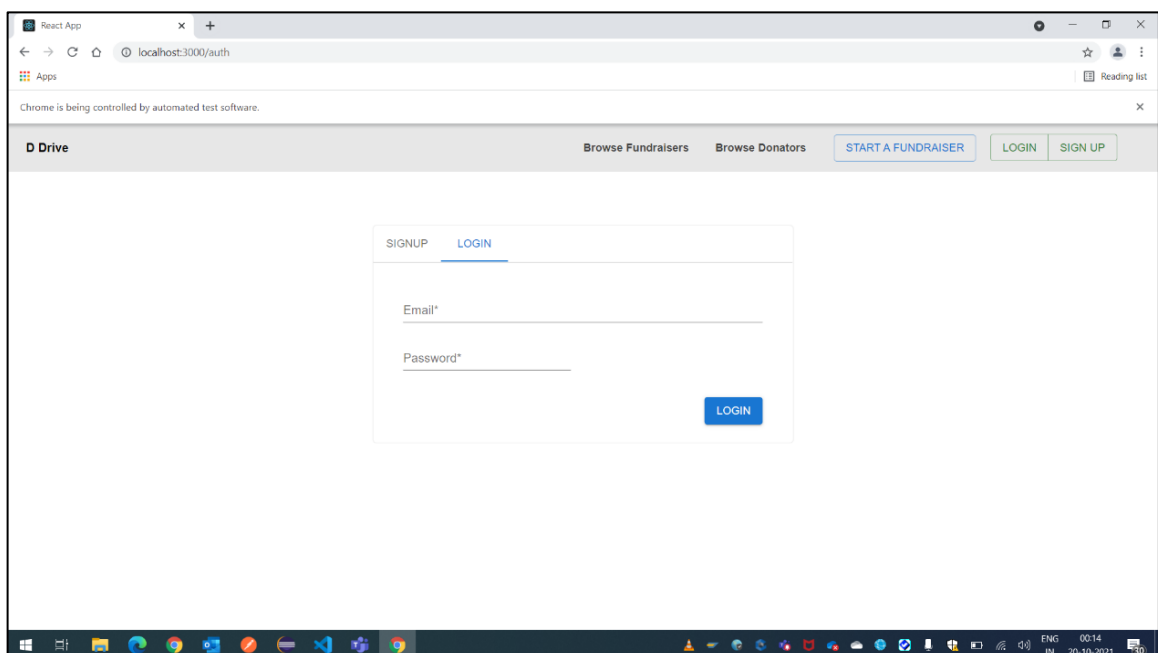
- We have used Selenium for automated testing.
- Selenium is a free (open source) automated testing framework used to validate web applications across different browsers and platforms.

Running selenium test (Chrome is being controlled by automated test software)

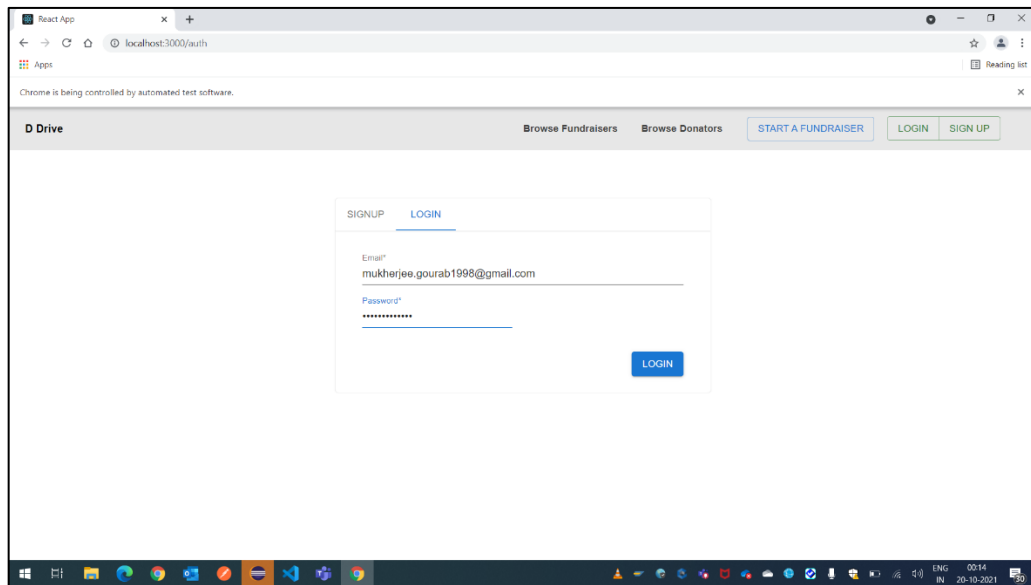
1. HomePage



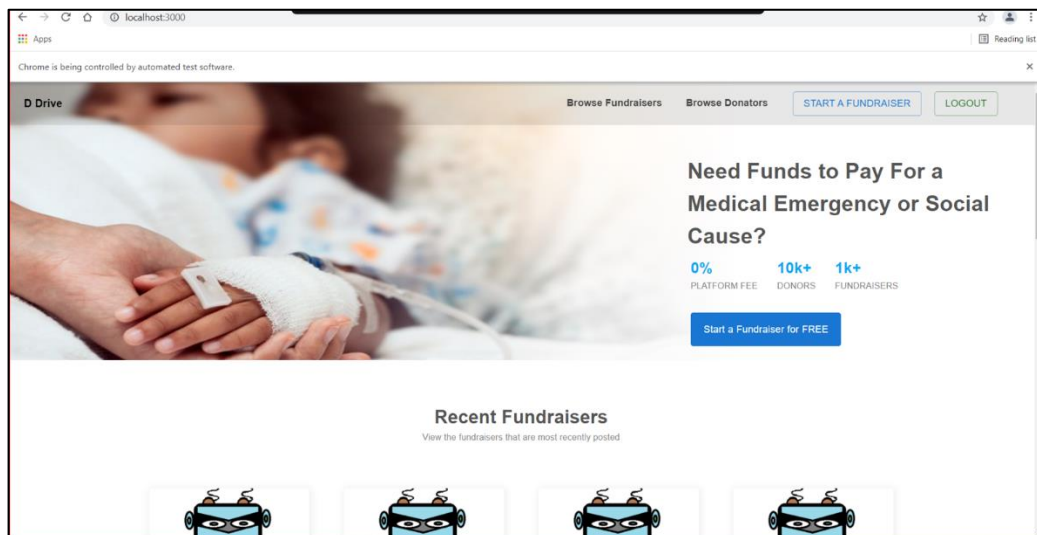
2. Login Page



3. Enter login data



4. Once user is logged in, assert Logout button is displayed



5. Tests Result

```
PASSED: launchSite
  Launches the site
PASSED: validateLoginData
  Enters valid login data

=====

Default test
Tests run: 2, Failures: 0, Skips: 0

=====

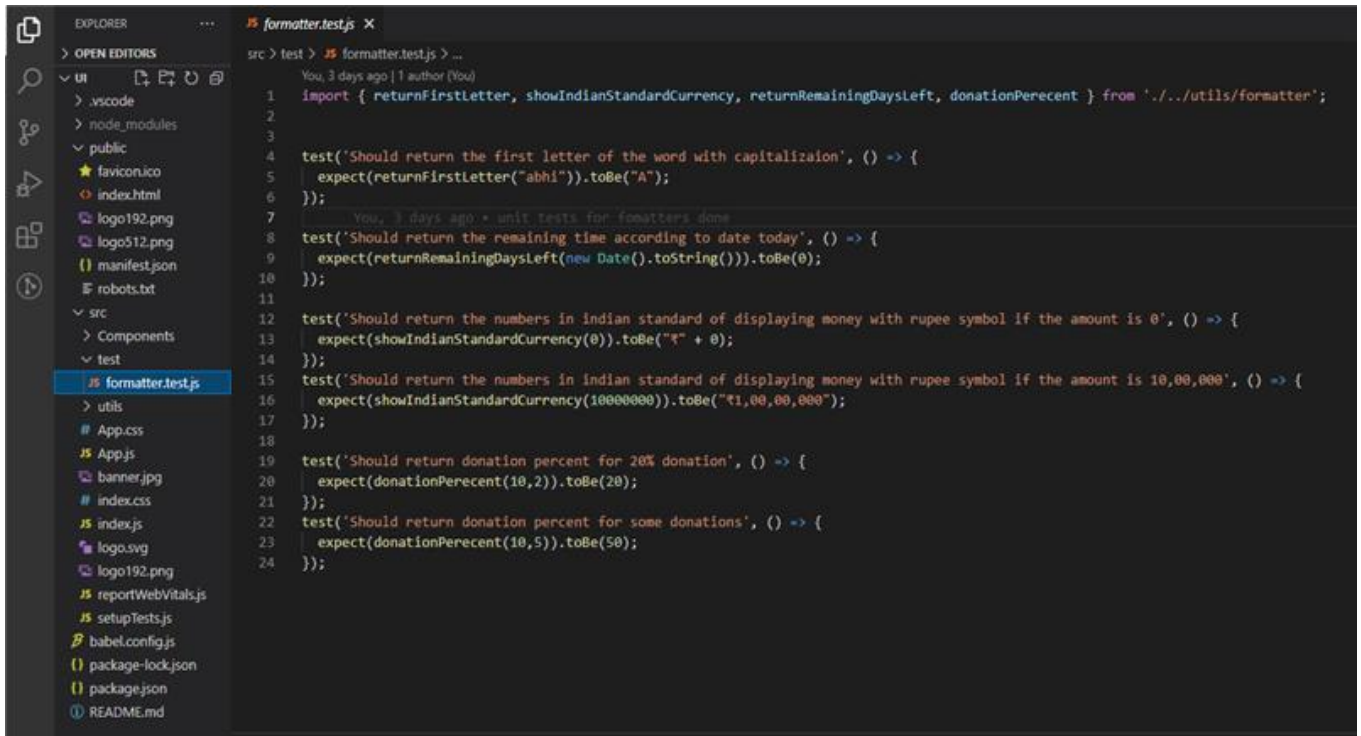
Default suite
Total tests run: 2, Passes: 2, Failures: 0, Skips: 0

=====
```

2. Jest – For JavaScript testing framework:

- We have used Jest for unit testing in our react application.
- Jest is a JavaScript testing framework maintained by Facebook, Inc. designed and built with a focus on simplicity and support for large web applications.

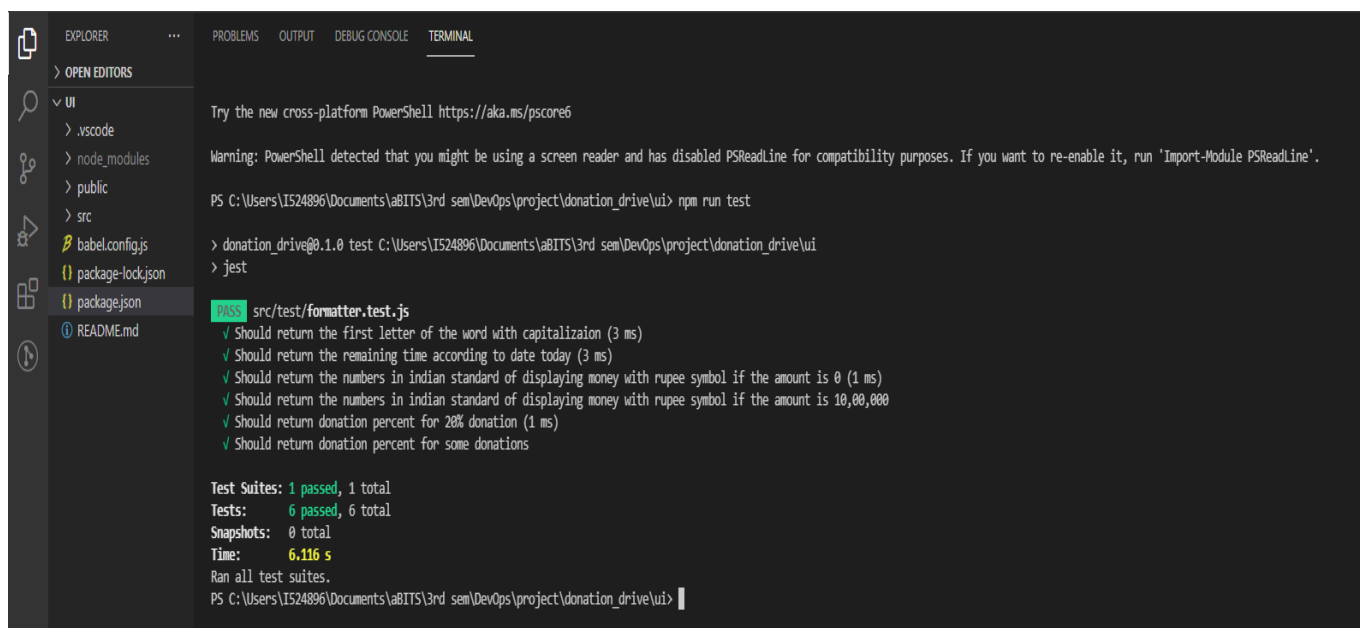
Test File with File Structure



The screenshot shows the VS Code interface. On the left, the Explorer sidebar displays the project structure with folders like .vscode, node_modules, public, and src. The src folder is expanded, showing subfolders Components, test, and utils. The test folder contains the file formatter.test.js, which is selected. The main editor area shows the code for formatter.test.js. It starts with an import statement for utility functions from ../utils/formatter. There are six test cases using expect and jest functions like returnFirstLetter, showIndianStandardCurrency, returnRemainingDaysLeft, and donationPerecent. The tests cover capitalization, date formatting, currency formatting, and donation percentage calculations.

```
src > test > .js formatter.test.js > ...
You, 3 days ago | 1 author (You)
1 import { returnFirstLetter, showIndianStandardCurrency, returnRemainingDaysLeft, donationPerecent } from '../utils/formatter';
2
3
4 test('Should return the first letter of the word with capitalizaion', () => {
5   expect(returnFirstLetter("abhi")).toBe("A");
6 });
7
8 You, 3 days ago • unit tests for formatters done
9 test('Should return the remaining time according to date today', () => {
10   expect(returnRemainingDaysLeft(new Date().toString())).toBe(0);
11 });
12
13 test('Should return the numbers in indian standard of displaying money with rupee symbol if the amount is 0', () => {
14   expect(showIndianStandardCurrency(0)).toBe("₹" + 0);
15 });
16 test('Should return the numbers in indian standard of displaying money with rupee symbol if the amount is 10,00,000', () => {
17   expect(showIndianStandardCurrency(10000000)).toBe("₹1,00,00,000");
18 });
19
20 test('Should return donation percent for 20% donation', () => {
21   expect(donationPerecent(10,2)).toBe(20);
22 });
23 test('Should return donation percent for some donations', () => {
24   expect(donationPerecent(10,5)).toBe(50);
25 });
```

Test Results:



The screenshot shows the VS Code interface with the Terminal panel active. It displays the output of running 'npm run test'. The output shows the command being executed, the path to the test file, and the results of six individual tests, all of which passed. A summary at the bottom indicates that all test suites passed.

```
Try the new cross-platform PowerShell https://aka.ms/powershell
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purposes. If you want to re-enable it, run 'Import-Module PSReadLine'.
PS C:\Users\IS24896\Documents\abITS\3rd sem\DevOps\project\donation_drive\ui> npm run test
> donation_drive@0.1.0 test C:\Users\IS24896\Documents\abITS\3rd sem\DevOps\project\donation_drive\ui
> jest
PASS src/test/formatter.test.js
  ✓ Should return the first letter of the word with capitalizaion (3 ms)
  ✓ Should return the remaining time according to date today (3 ms)
  ✓ Should return the numbers in indian standard of displaying money with rupee symbol if the amount is 0 (1 ms)
  ✓ Should return the numbers in indian standard of displaying money with rupee symbol if the amount is 10,00,000
  ✓ Should return donation percent for 20% donation (1 ms)
  ✓ Should return donation percent for some donations
Test Suites: 1 passed, 1 total
Tests: 6 passed, 6 total
Snapshots: 0 total
Time: 6.116 s
Ran all test suites.
PS C:\Users\IS24896\Documents\abITS\3rd sem\DevOps\project\donation_drive\ui>
```