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GENESIS - Learning Outcome & Mini-project Summary Report



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| **Ver. Rel. No.** | **Release Date** | **Prepared. By** | **Reviewed By** | **To be Approved** | **Remarks/Revision Details** |
| 1 | 09/11/2020 | Asha N |  |  |  |
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# Miniproject -1 [Team/Individual]

## **Title : Doctor Appointment System**

## **1.** **Module/s Used**

Modules linked to the miniproject are Linux, SDLC and C++.

C++:

C++ is a general-purpose programming language created by Bjarne Stroustrup as an extension of the C programming language, or "C with Classes.

SDLC:

Software Development Life Cycle (SDLC) is a framework that defines the steps involved in the development of software at each phase. It covers the detailed plan for building, deploying and maintaining the software.

### 1.1 Topic and Subtopics

* CSV file
* Class and Object-OOP in C++.
* Google test(Unit test)
* Make file
* SDLC and TDLC
* Polymorphism
* Operator overloading
* STL containers.
* Code Quality(Codacy)

## **2.** **Objectives & Requirements**

#### 2.1.1 High level requirements

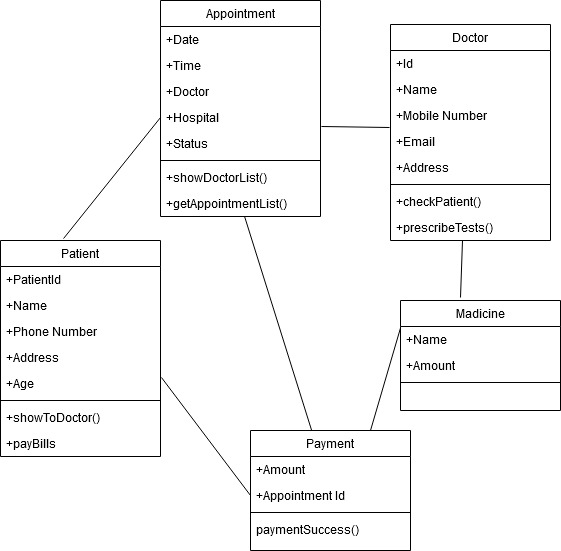
|  |  |
| --- | --- |
| **ID** | **Description** |
| HL\_01 | Analysis of patient details. |
| HL\_02 | Comparison of different diseases |
| HL\_03 | Highest and lowest aged patients. |
| HL\_04 | Adding new patient details |

#### 2.21.2 Low level requirement

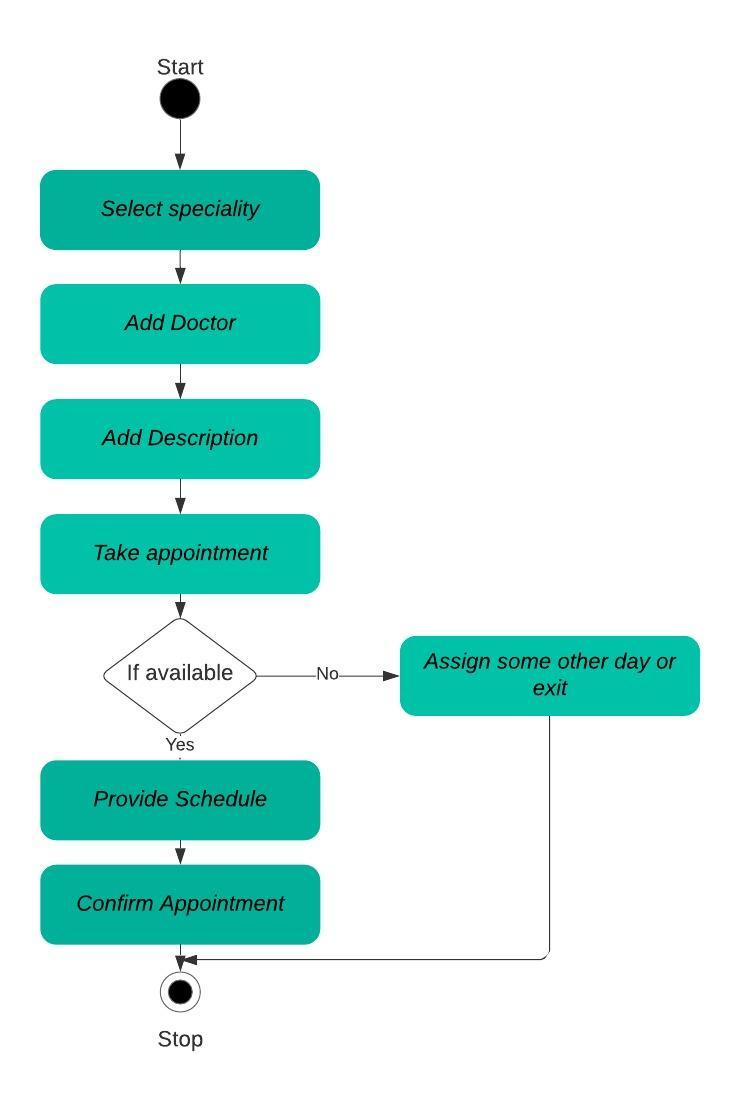
|  |  |
| --- | --- |
| **ID** | **Description** |
| LL\_01 | Reading data from csv file. |
| LL\_02 | Saving all data on list using STL concepts |
| LL\_03 | Implementation of CI/CD. |

## **3.** **Design**

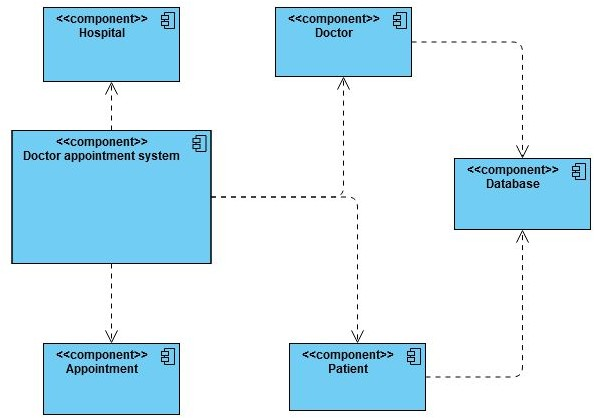
### 3.1 **Class Diagram**



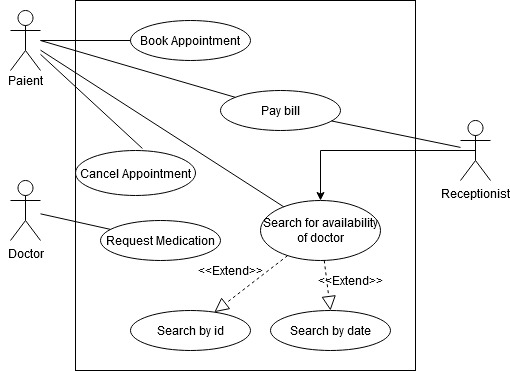
### **3.2 Activity Diagram**



### **3.3 Component Diagram**



### **3.4 Use Case Diagram**



## **4.** **Test Plan**

### **4.1 Unit Testing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test id | Description | Expected input | Expected output | Actual output |
| HH\_01 | Knowing of patient details. | Adding the data to list | Display of list where patient is added | Patient added |
| HH\_02 | Analysis of different diseases | Checking of different diseases | Printing of different diseases | True |
| HH\_03 | Highest aged patients | Giving patient name | Giving the highest aged patient name. | Year patient name |
| HH\_04 | Adding of new patient | Adding of new patient | Display of list where new patient is added | True |

### **4.2 Integration Testing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test id | Description | Expected input | Expected output | Actual output |
| LL\_01 | Reading of csv file | Csv file | Adding of all data present in csv to list | Data added to list |
| LL\_02 | Adding data to list using STL concepts | Adding data to list | Data added to list | Display of list |
| LL\_03 | CI/CD | GitHub Actions | Cppcheck, valgrind, unit testing , codacy | Passing all CI/CD |

## **5.** **Implementation Summary**

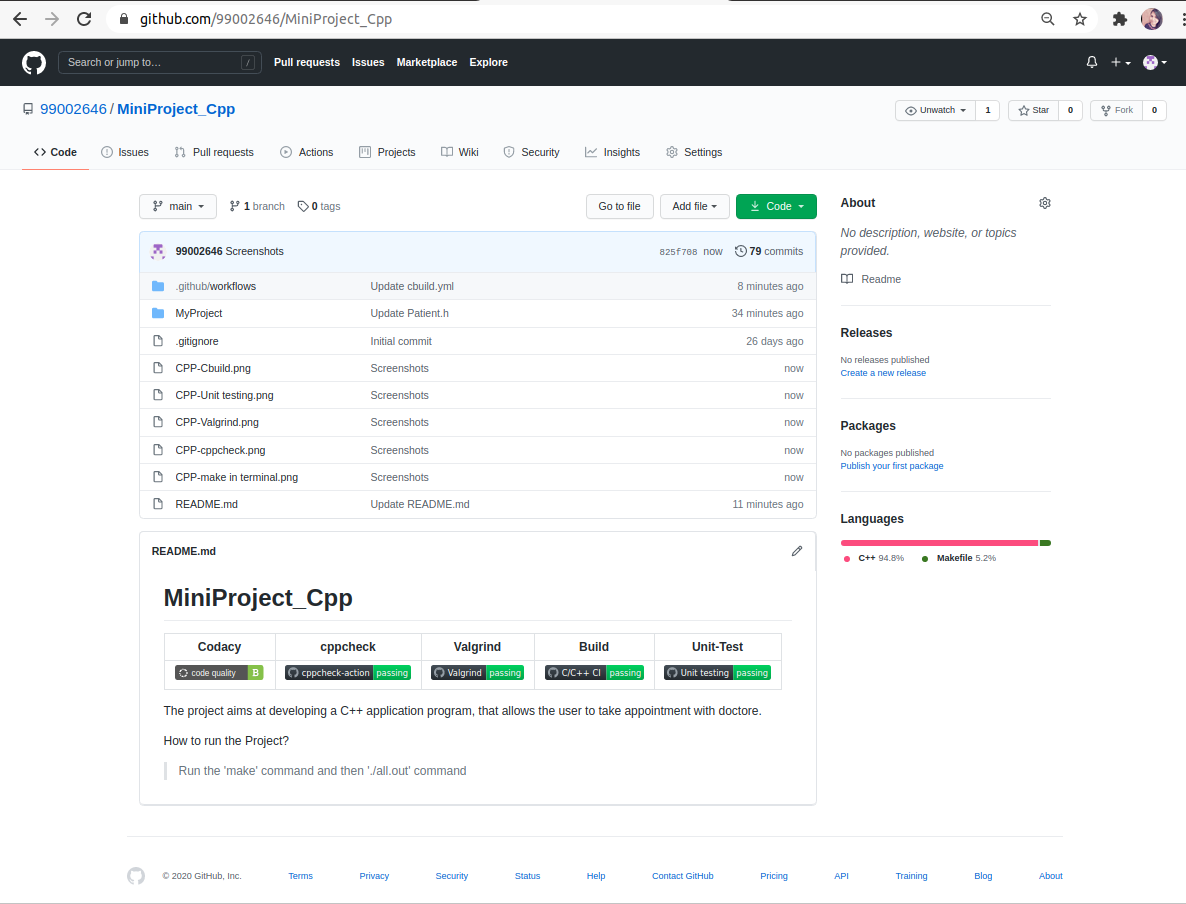
The implementation of this project is updated in the git repository “99002646/MiniProject\_Cpp”

https://github.com/99002646/MiniProject\_Cpp.git

### **5.1** **Git link**

<https://github.com/99002646/MiniProject_Cpp>

### 5.2 Git Dashboard



### 5.3 Summary

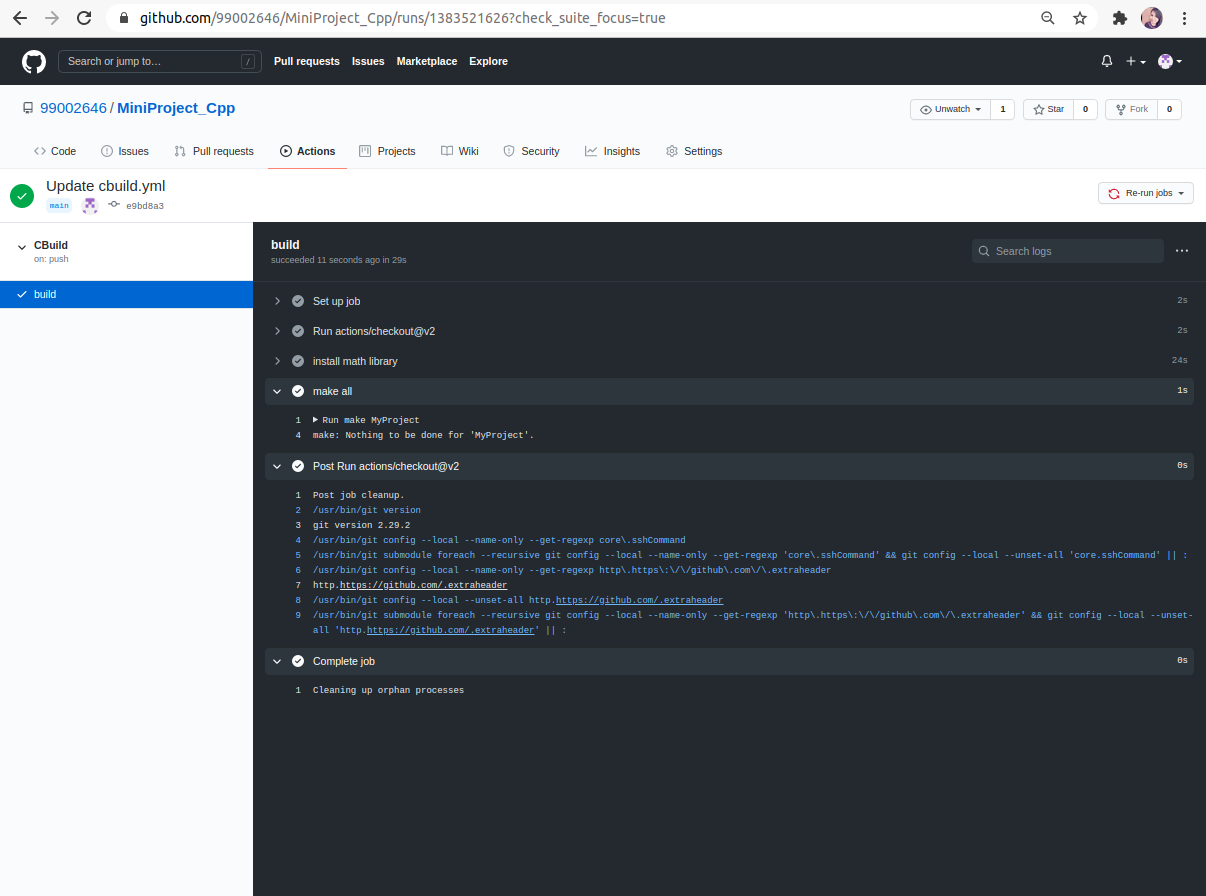
* The Doctor appointment system project is implemented using the C++.
* STL Concepts is used to work with the csv file.

#### Git inspector summary

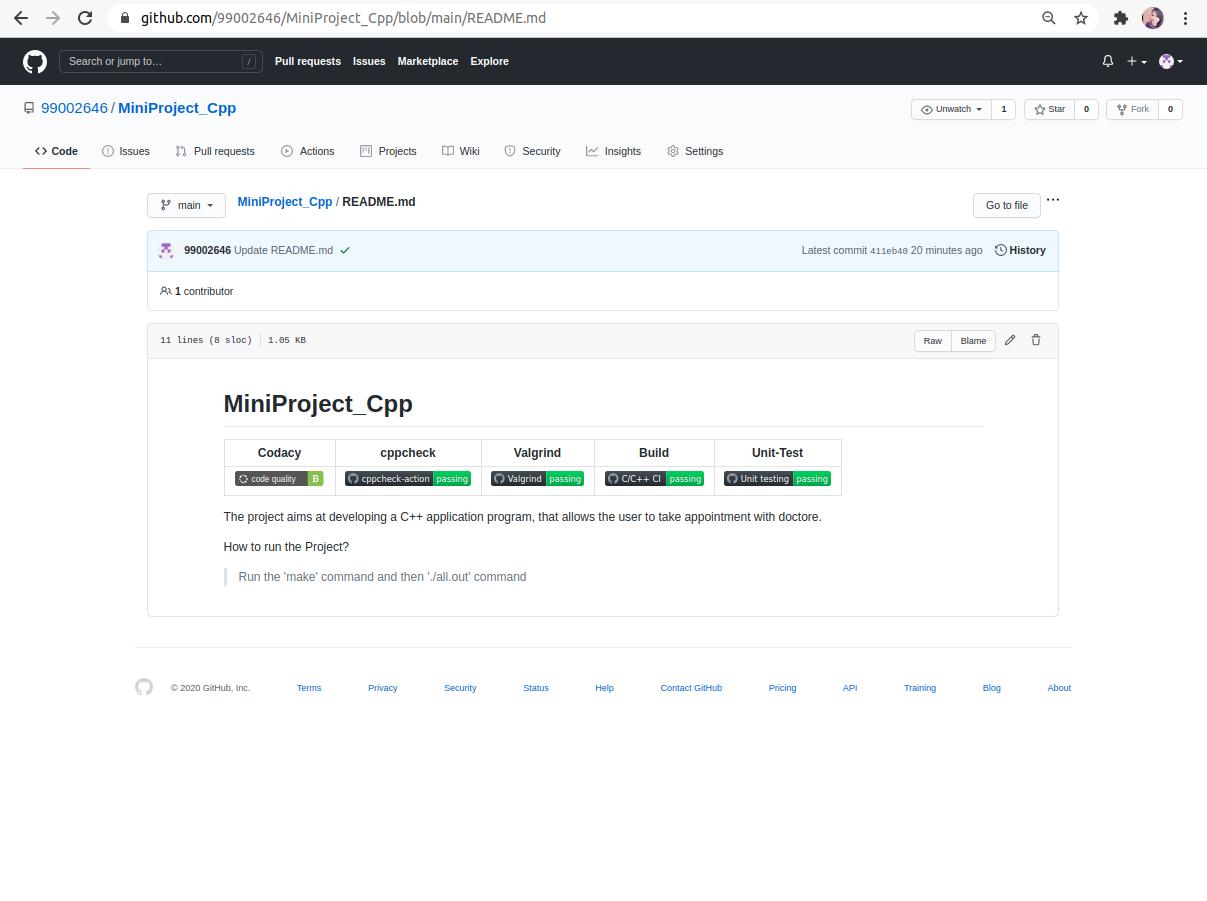


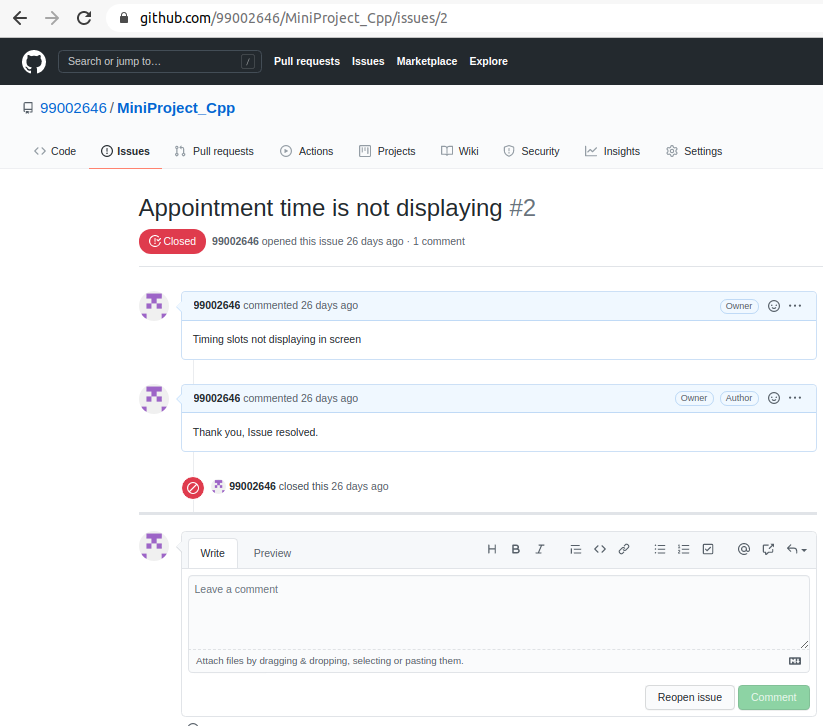
#### Build

* Use Cmake to link all the files and generate the Makefile
* Execute generated Makefile
* run ./executeTests
* run valgrind ./executeTests to check for memory leaks

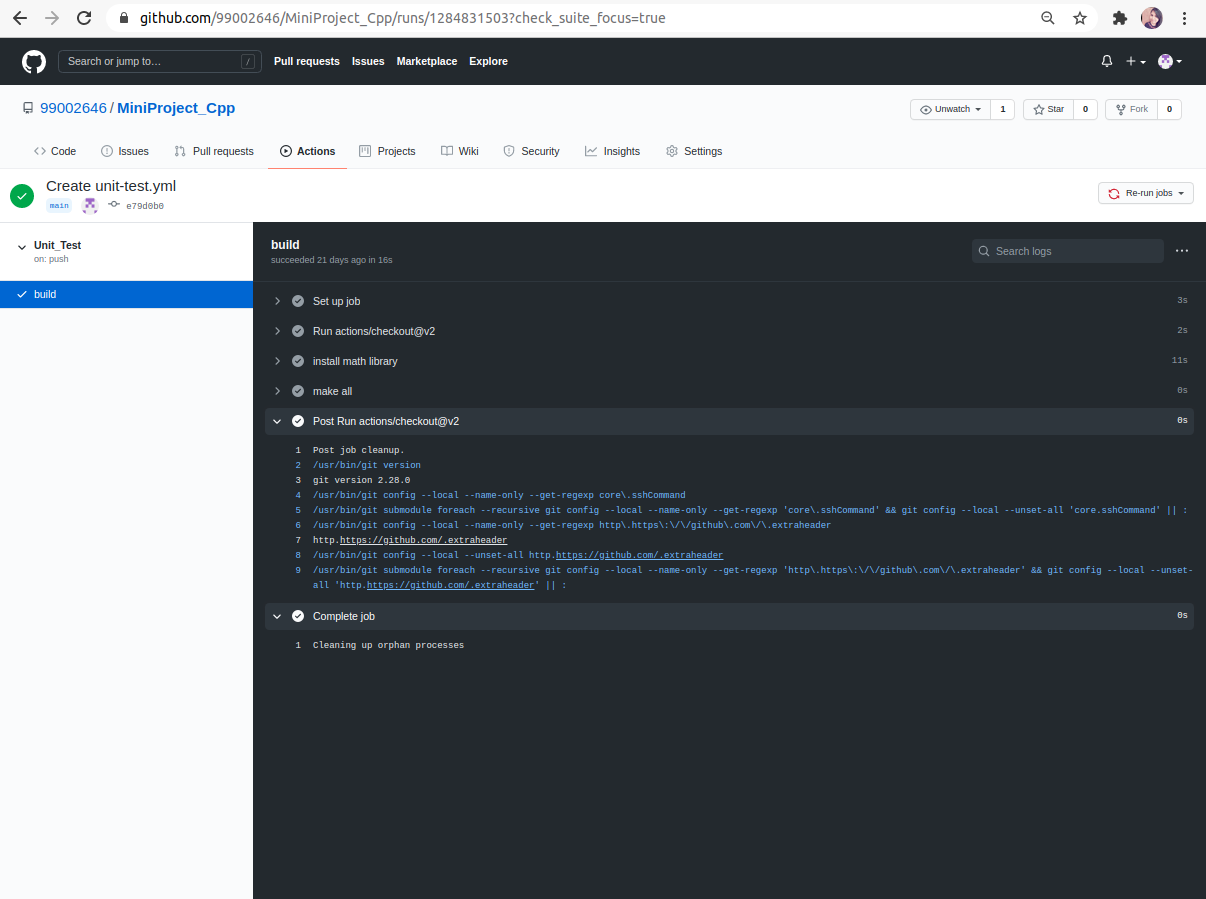


#### Code quality and Issues or Bug Tracking





#### Unit Testing



## **6.****Individual Contribution & Highlights**

Not Applicable – Individual Project; Sole Collaborator.

## **7.** **Challenges faced and how were they overcome**

* While implementing the STL concepts like list, vector we have faced an issue to display the data from the Data set .
* We have overcome this problem by implementing it using the list as the containers.

### 7.1 Future Scope

* This project can be implemented further by upgrading the appointment schedule and analyzing the shows.

# Miniproject -2 [Team/Individual]

## **Title : Doctor Appointment System**

## **1.** **Module/s Used**

## Mini project is related to linux and OS programming using C programming.

### 1.1 Topic and Subtopics

* Process, Threads and IPC
* process synchronization with semaphore and mutex.
* Critical section, Race condition real-time implementation.
* CPU scheduling algorithm.

## **2.** **Objectives & Requirements**

Burger Buddies Problem: Design, implement and test a solution for the IPC problem specified below.

we have the following scenario:

* Cooks, Cashiers, and Customers are each modeled as a thread.
* Cashiers sleep until a customer is present.
* A Customer approaching a cashier can start the order process.
* A Customer cannot order until the cashier is ready.
* Once the order is placed, a cashier has to get a burger from the rack.
* If a burger is not available, a cashier must wait until one is made.
* The cook will always make burgers and place them on the rack.
* The cook will wait if the rack is full.
* There are NO synchronization constraints for a cashier presenting food to the customer.

## **3.** **Design**

### 3.1 c Diagram

### 3.2 c Diagram

### 3.3 c Diagram

### 3.4 c Diagram

## **4.** **Implementation Summary**

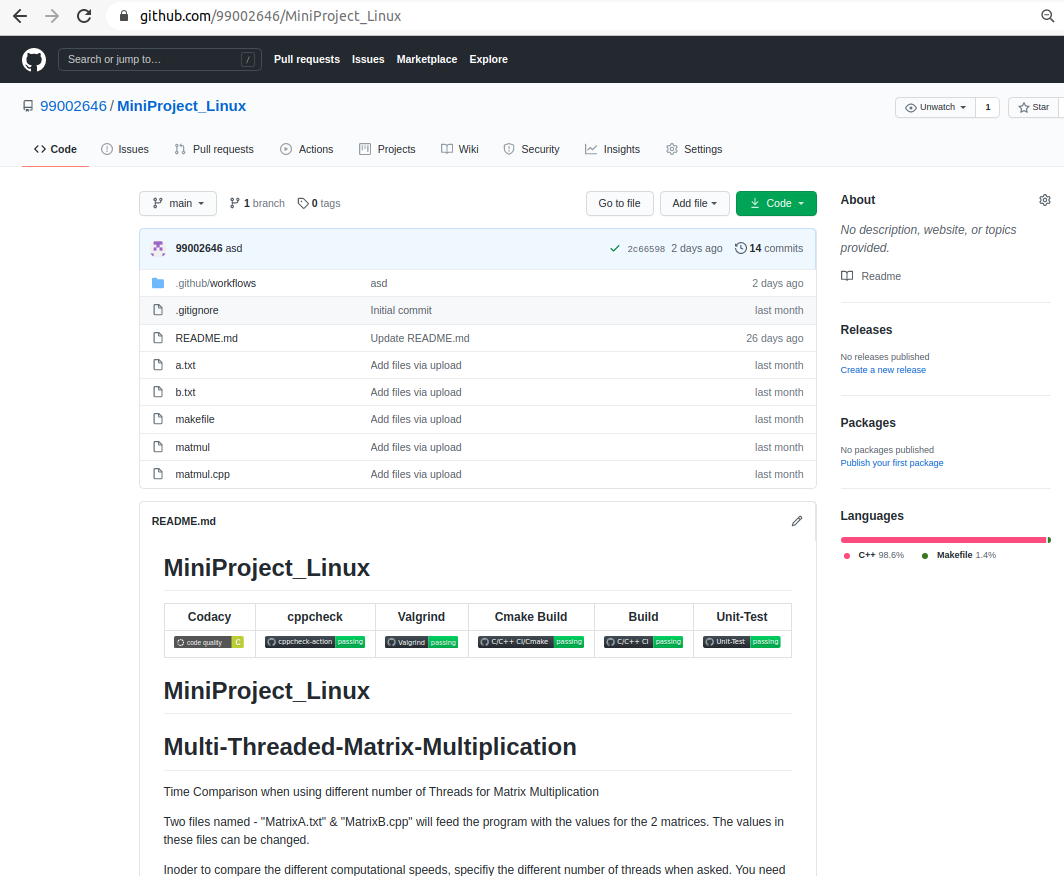
The linux and OS programming project is updated in the git repository “99002646/MiniProject\_Linux”

<https://github.com/99002646/MiniProject_Linux.git>

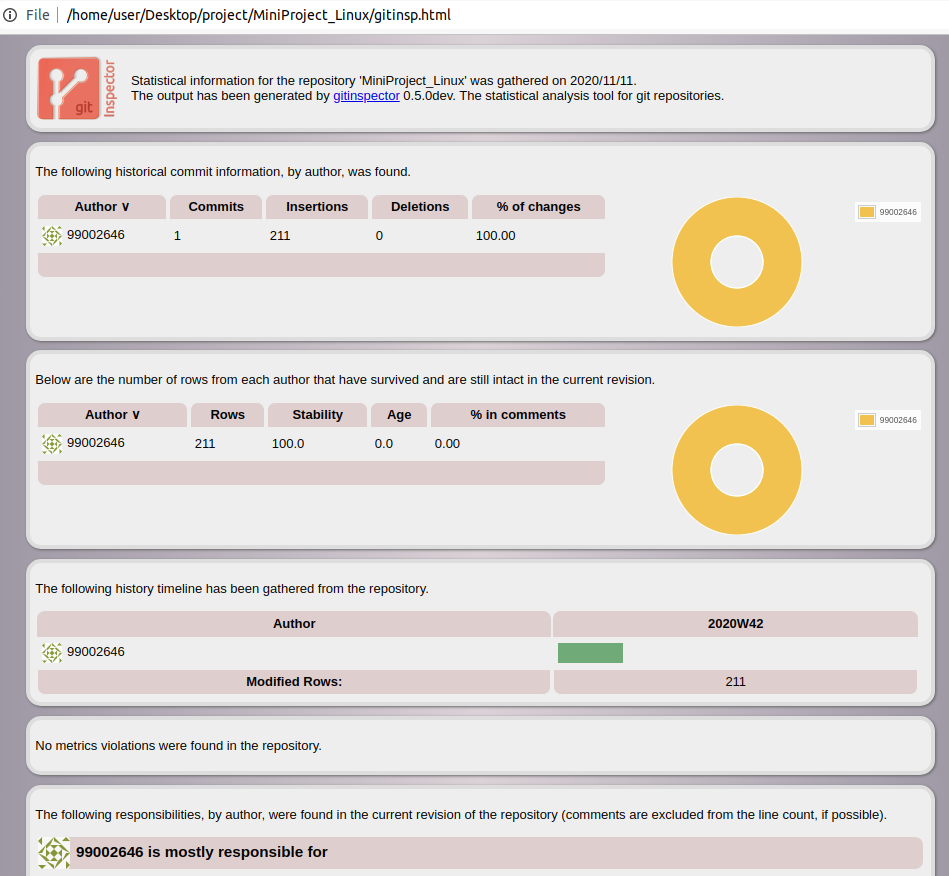
### 4.1 Git Link

<https://github.com/99002646/MiniProject_Linux.git>

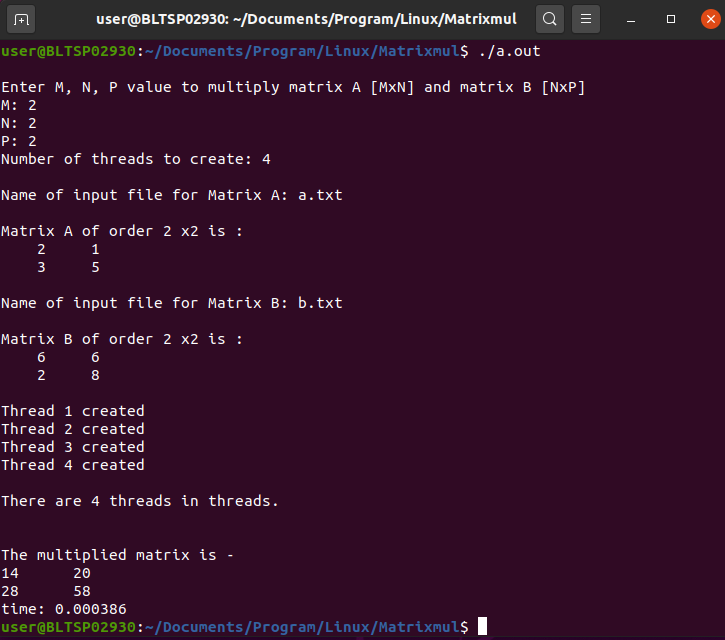
### 4.2 Git Dashboard



#### Git inspector summary



#### Build



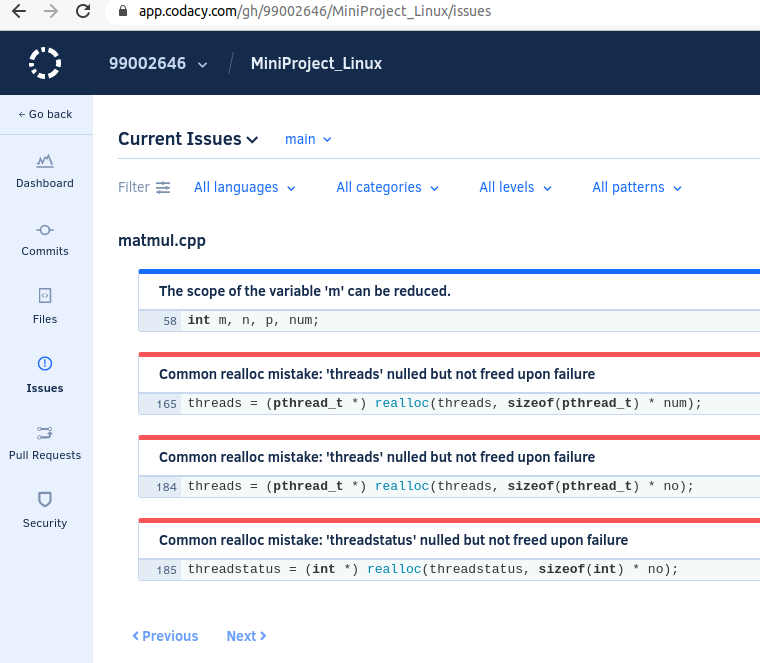
#### Code quality

* Code Quality: Codacy: B Grade
* CppCheck: Passing
* C/C++ CI Build: Passing

### 4.3 Summary

In this project we have not used any synchronization in future it can be implemented while serving the burger with many customer to maintain the process accurately.

## **5.** **Individual Contribution & Highlights**



### 5.1 Challenges faced and how were they overcome

While implementing the Thread concept we have faced some issues and it resolved by trail and error process.

# Miniproject -3 [Team/Individual]

## **Title : Top Women Chess Players**

## **1.** **Module/s Used**

Modules linked to the miniproject are Linux, SDLC and C++.

C++:

C++ is a general-purpose programming language created by Bjarne Stroustrup as an extension of the C programming language, or "C with Classes.

SDLC:

Software Development Life Cycle (SDLC) is a framework that defines the steps involved in the development of software at each phase. It covers the detailed plan for building, deploying and maintaining the software.

### 1.1 Topic and Subtopics

“Briefly list the core topics and subtopics being implemented and how”

* Class and Object-OOP in C++.
* Gtest to respective IDE and integrate g++ compiler.
* Surfed online different contents for compiler integration and concepts of OOP.
* polymorphism, operator overloading, templates and many more.
* STL containers.

## **2.** **Objectives & Requirements**

* The top women chess players analysis mini project has fide id, name of the player, title, date of birth, federation, standard rating, rapid rating, blitz rating columns.
* which helps to find the players by their fide id.
* It sorts the names, titles with the ascending and descending order.
* It calculates the standard rating, rapid rating, blitz rating and finds the maximum and minimum rating for the individual players.
* Counts the number of players in the given data set and group the players by their respective federation and region.

### 2.1 Requirements

#### **2.1.1High level requirements**

-To Compute the minimum and maximum rating of the Top Chess players with standard rating, rapid rating and blitz rating.

-To Count the players by the Federation.

-To Compute the Maximum rating of the players.

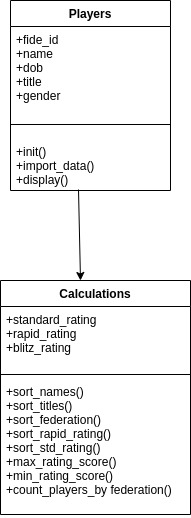
#### **2.1.2 Low level requirements**

-To sort the names, titles of the players in the ascending and descending order.

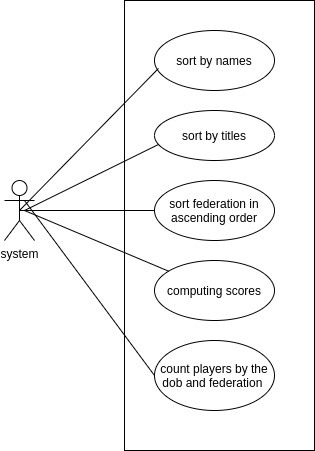
-To find women players by the date of birth and federation name.

## **3.** **Design**

### 3.1 **Class Diagram**



### **3.2 Use Case Diagram**



## **5.** **Implementation Summary**

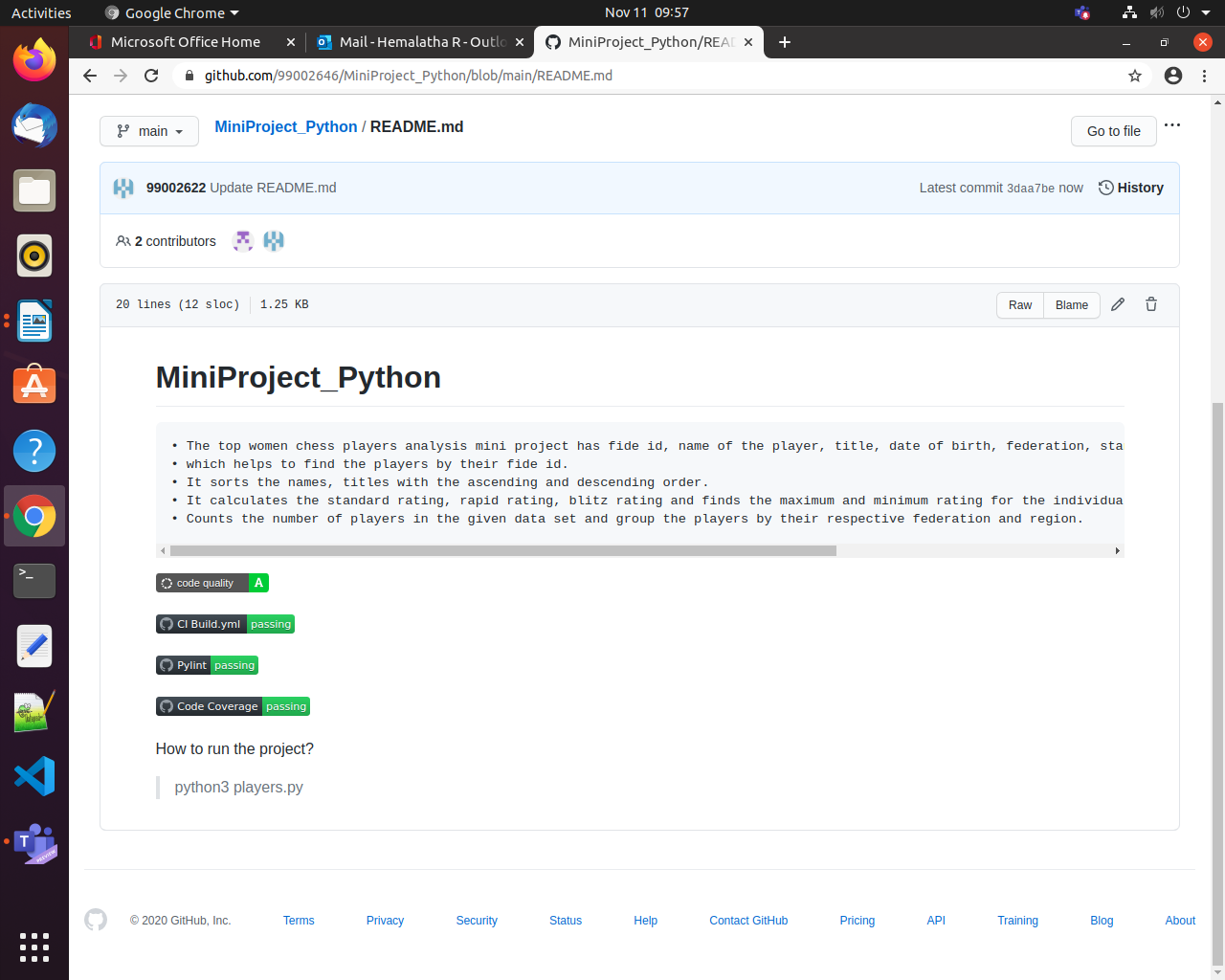
The implementation of this project is updated in the git repository “99002646/MiniProject\_Python”

[https://github.com/99002646/MiniProject\_Python.git](https://github.com/99002646/MiniProject_Cpp)

### **5.1** **Git link**

[https://github.com/99002646/MiniProject\_Python.git](https://github.com/99002646/MiniProject_Cpp)

### 5.2 Git Dashboard



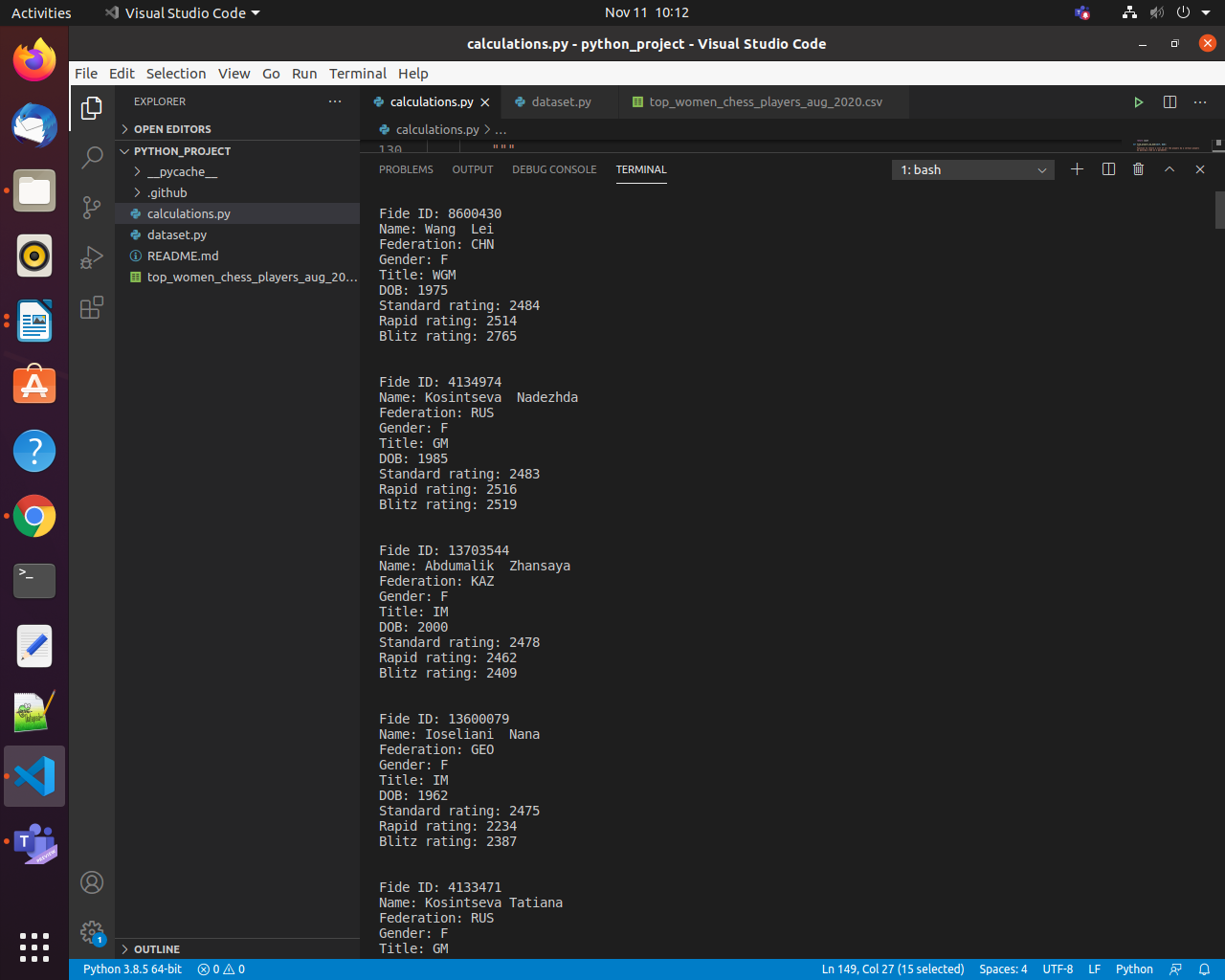
### 5.3 Summary

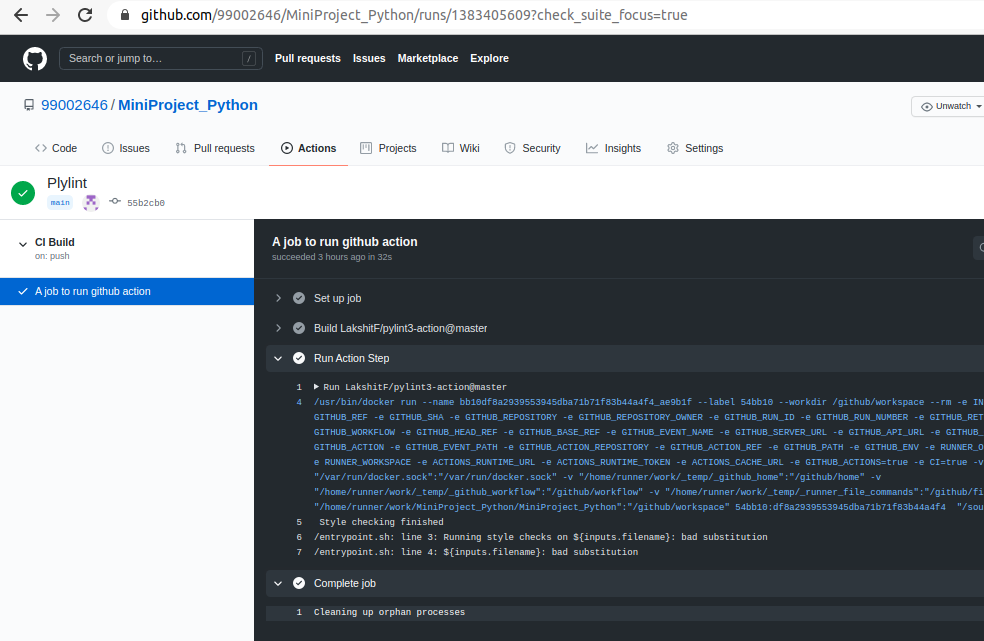
* The Top women chess player analysis Project is implemented using the C++ which displays the players name, fide id, date of birth, gender, federation, Titles and ratings.
* STL Concepts is used to retrieve the DataSet.
* Here, we perform some of the functions like computing the ratings of all the three different ratings and displaying the maximum ratings of all the players.
* By using the Federation as the key displaying the players within that federation.
* Identifying the player using the Fide ID by using the Id as parameter.
* Finding total number of women players by using the count function in the dataset.

#### Git inspector summary

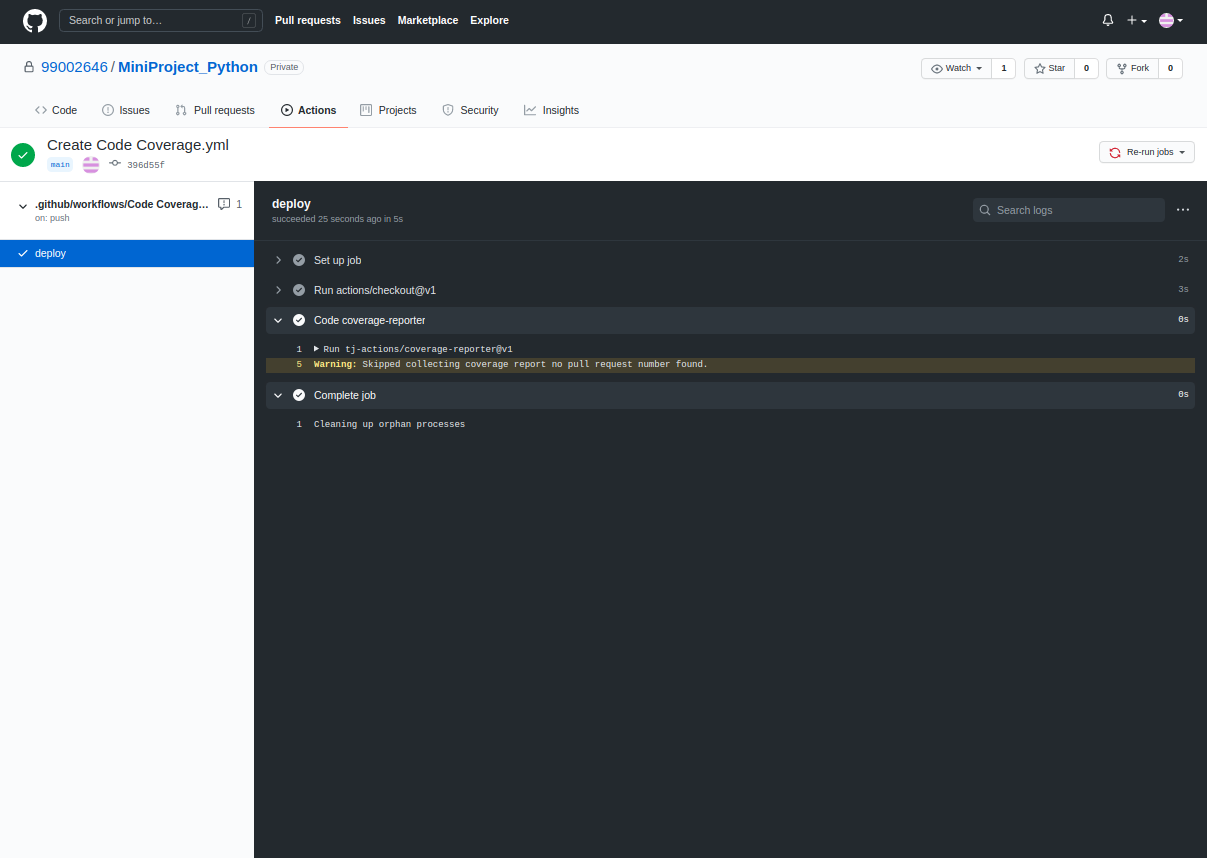


#### Build





#### Code quality and Issues or Bug Tracking



## **6.** **Individual Contribution & Highlights**

### 6.1 **Code Contributors**

### 6.2 Summary

### 6.3 Challenges faced and how were they overcome

* While importing the data from the data set we have faced some of the problems with the particular row and columns.
* We have overcome that problem with trail and error.

### 6.4 Future Scope

* This project can be implemented further by adding some other features like displaying the players personal details if we give their Name or ID..

## **7. REFERENCES**