CS455 – INTRODUCTION TO SOFTWARE ENGINEERING

PCTrack

By:
Nikhil Aggarwal (10446)
Department Of Computer Science and Engineering
Indian institute of Technology, Kanpur

&
Sakaar Khurana (10627)
Department Of Computer Science and Engineering
Indian institute of Technology, Kanpur

Introduction

PCTrack is a windows Desktop application that will keep track of all the activities user perform on his desktop/laptop and log them so that user could analyze how he spent his time on computer and how efficiently he managed his time. This app is meant for people who spend most of their time on laptops or PC. People generally waste lot of time on computer and don't realize it. By looking at their activity logs they could understand doing what they have wasted their time and could increase their efficiency by avoiding those activities. Also this app could be used by parent to monitor activities of child. Our app provides a friendly user interface to easily analyze his activities on Laptop not only for a day but also over a span of period by summarizing his activities into Bar chart, Line graphs, etc.

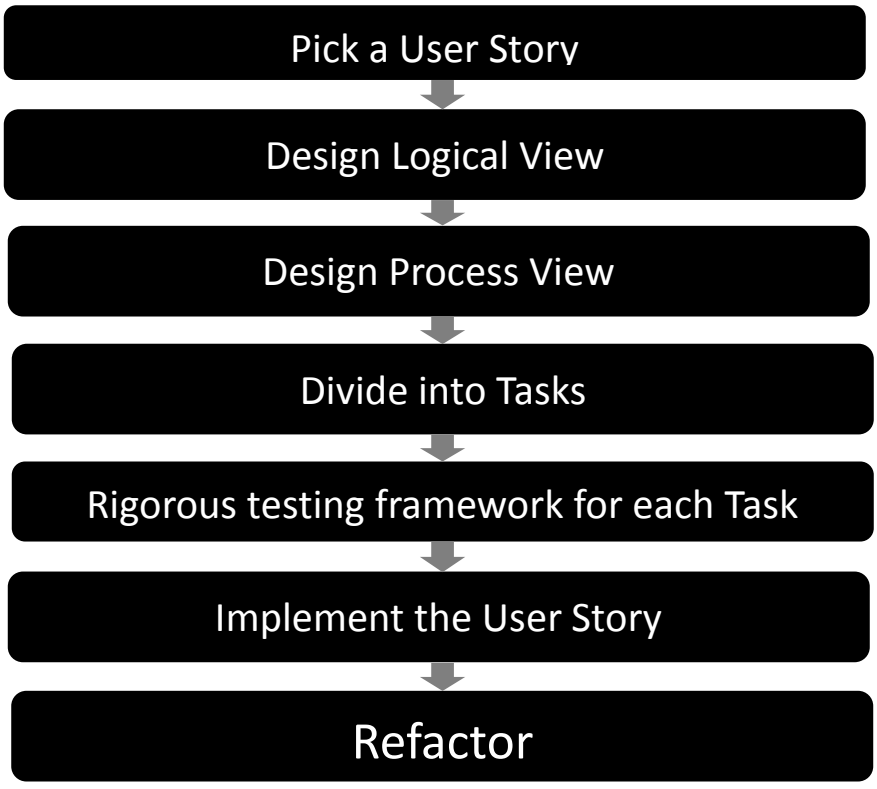
Features Supported

Various Features that our App has are:

1. Password protection of user logs so that no one else could access them or edit them
2. The logs are very accurate: It detects idle computer and every change in forefront screen
3. The logs entries could be deleted. If user doesn't want some activity to be in the list then he can delete it.
4. User could analyze what process he has used for maximum over a span of period. A bar chart depicting the user process use help user to analyze easily.
5. User could analyze how much time he has spent on computer over a span of period. A line chart depicting the daily computer use help user to analyze easily.
6. Logs are synced on multiple computer and in also across platform. We have Log sync for Linux platform already implemented. We would be implementing for MacOS in future.
7. Daily activity could be viewed and analyzed by user.

Software Engineering Method

We have used **Extreme Programming**.



Log Storage Files

Logs are saved in XML files. Logs could be divided into 4 categories:

1. Daily Final Logs: It saves the daily activity log of the user.
2. Daily Process Use Log: It saves which process has run for how much time in a day. It doesn't have any start time or end time info. It just stores time spent on a process.
3. Temp log: These files save the instantaneous logs and are process later to secondary temp logs
4. Secondary Temp logs: Temp logs are process to secondary log which are further processes to give daily final logs.

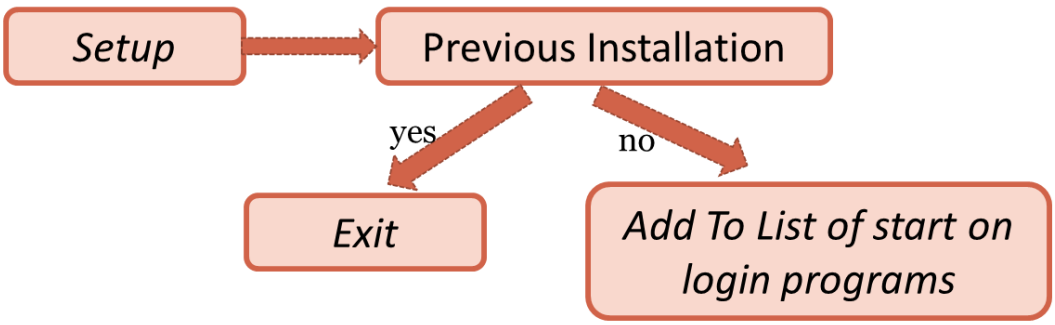
User Stories

Various User stories and their 4+1 diagrams are:

1. ***As a*** *user,* ***I want*** *the application to run in background on Windows startup.*
   Scenario 1*: Background*
   Given *I have application installed on PC*
   When *I start the PC*
   Then *application automatically starts in background and starts logging the activities.*

Logical View

Process

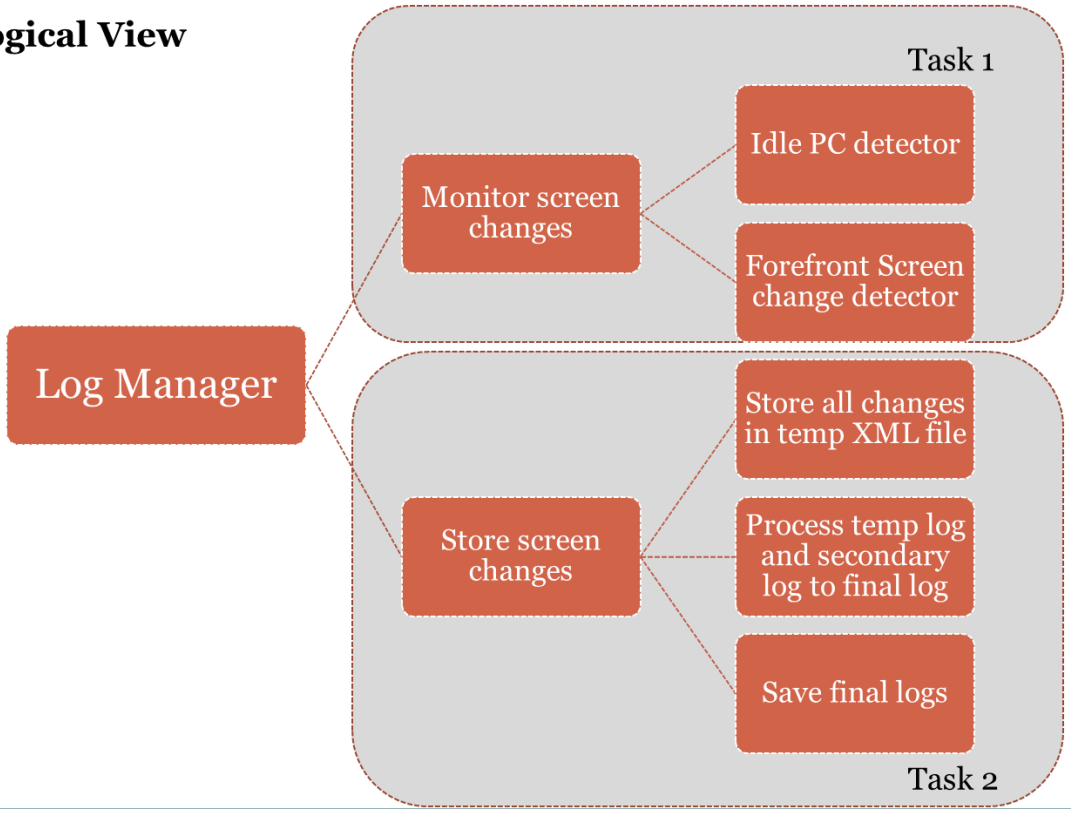


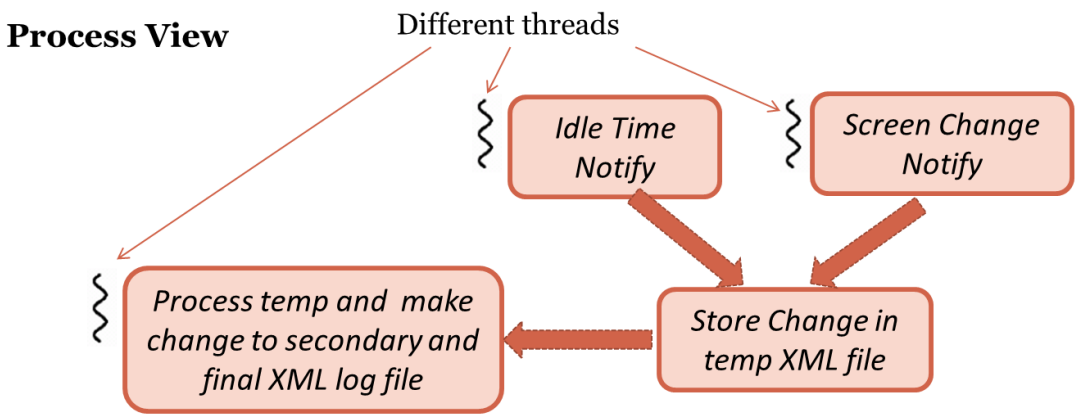
2. ***As a*** *user,* ***I want*** *to get log of time spent, so that I can analyse and keep track of my activities on PC.*
   Scenario 1*: Time Log*
   Given *I have spent some time on PC after installation of application*

When *I Start the application and open the logs*
Then *I get a chronological list of activities and time spent on each of them for that day.*

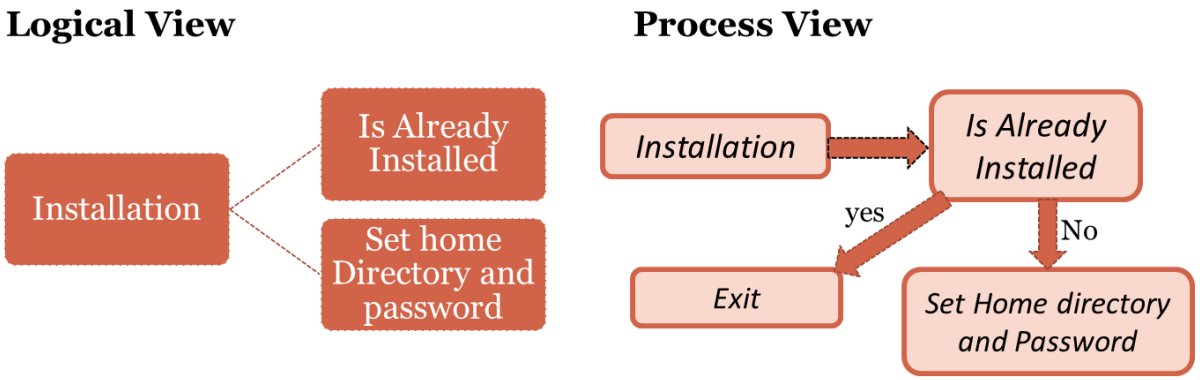
3. ***As a*** *user,* ***I want*** *the logs to be accurate and meaningful so that factors such as leaving PC idle and frequent switching between applications are accounted for.*
Scenario 1*: Detect idle time*
Given *The application is running*
When *I leave the PC idle*
Then *application should detect that PC went idle and should not log about application which was open before.*
Scenario 2*: Improvise multiple task switches*
Given *The application is running*
When *I switch between tasks say 20 times in 1/2 hour*
Then *application should not log each of those 20 items, rather it mentions that you switched between tasks a lot, and maybe log 2/3 activities on which maximum time is spent.*

Logical View





4. ***As a*** *user,* ***I want*** *separate logs for different users.*
   Scenario 1*: User based Logging*
   Given *I start my PC with a user account*
   When *I open application and view logs*
   Then *I see logs of only the logged in user.*



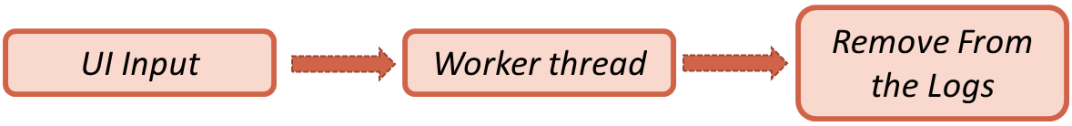
5. ***As a*** *user,* ***I want*** *the application to consume minimal resources (CPU, memory) So that it does not affect the performance of other applications.*
   Scenario 1*: Resource friendly*
   Given *the application is running*
   When *I start several other applications and switch very fast among them*
   Then *I don't want their performance to be affected.*

Logical View: None.
Process View: None.

6. ***As a*** *user* ***I want*** *logs to be editable So that I can delete any (other) activity to the log*
   Scenario 1*: delete the logs*
   Given *the application is running*
   When *I Open log for some date*
   Then *I should be able to remove activities from it.*

Logical View: None

Process View



7. ***As a*** *user* ***I want*** *common log of my activities on different computer or operating system So that I can analysis my all logs at one place*

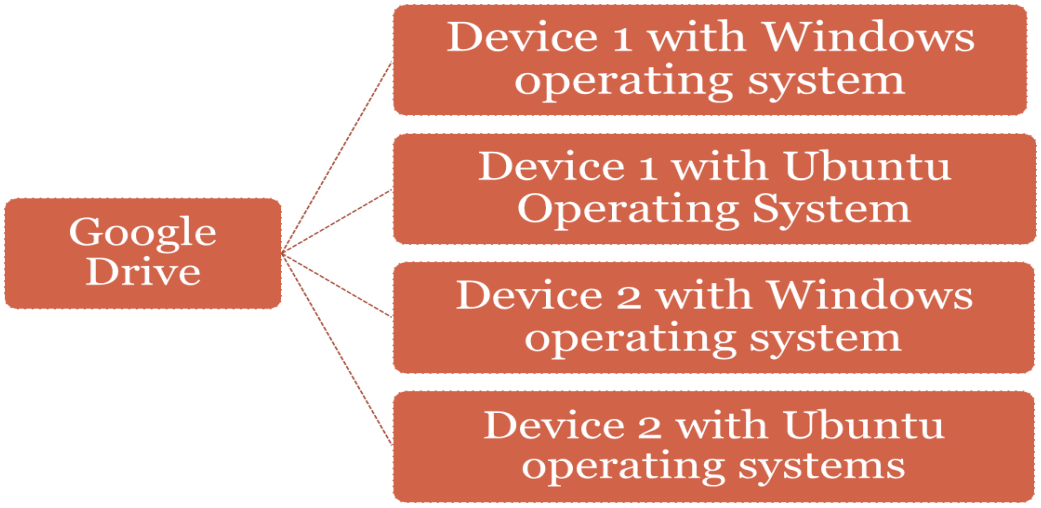
   Scenario 1*: Common Logs*

   Given I use more than one computer or operating system and application is running on all of them

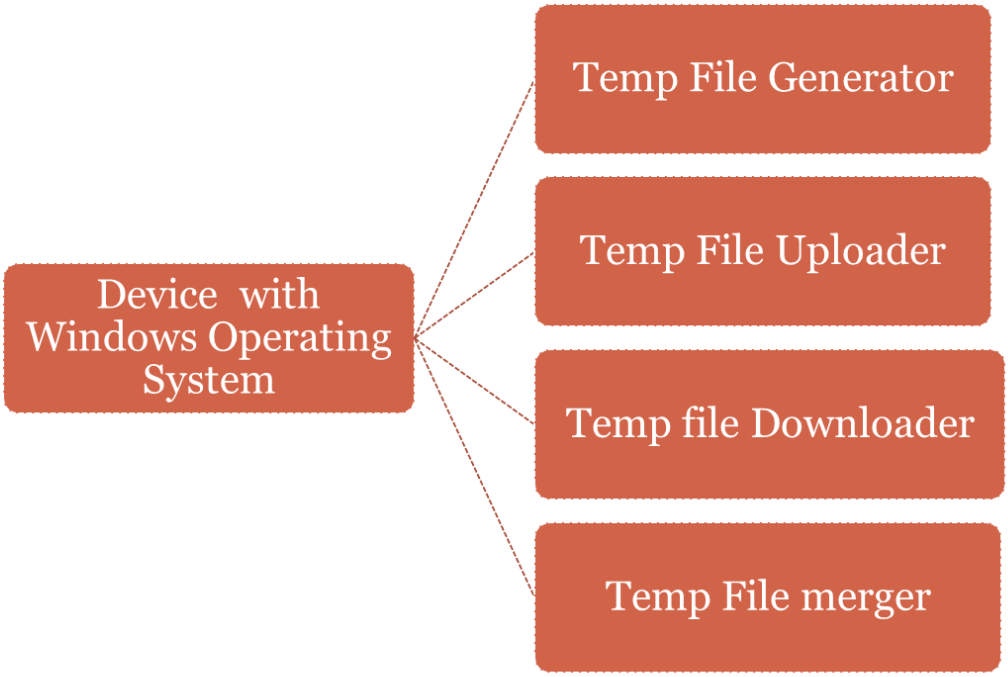
   When I *Open log for some date on some computer*

   Then I *should be able to analysis my all activities on all computer's and operating systems*

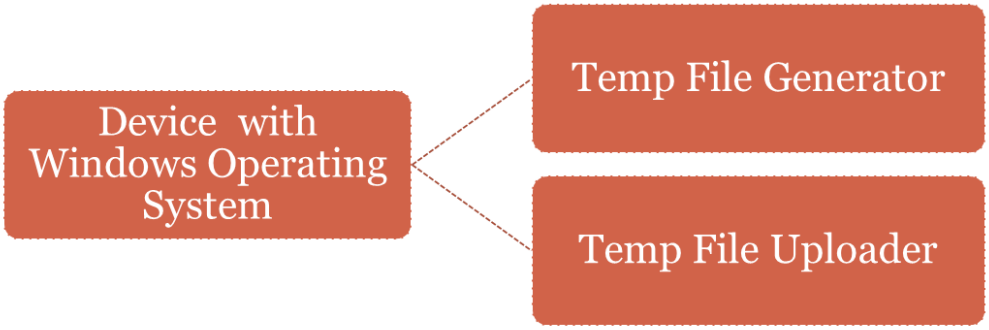
Physical View



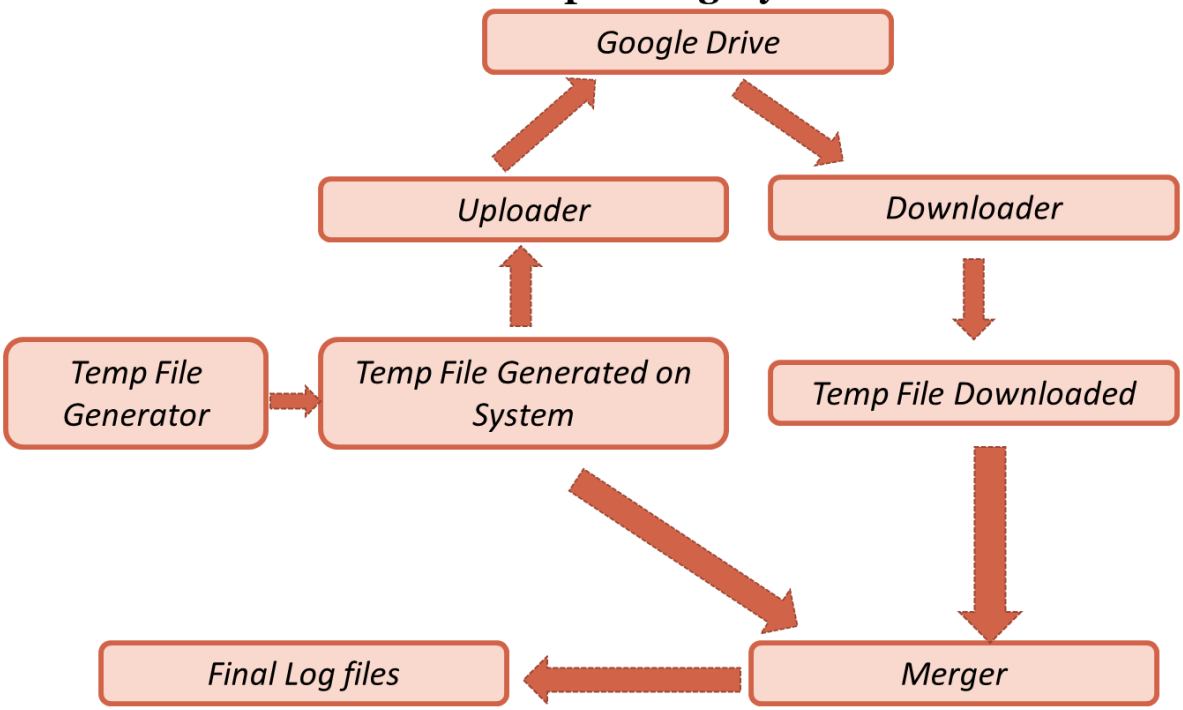
Logical View For Windows Operating System



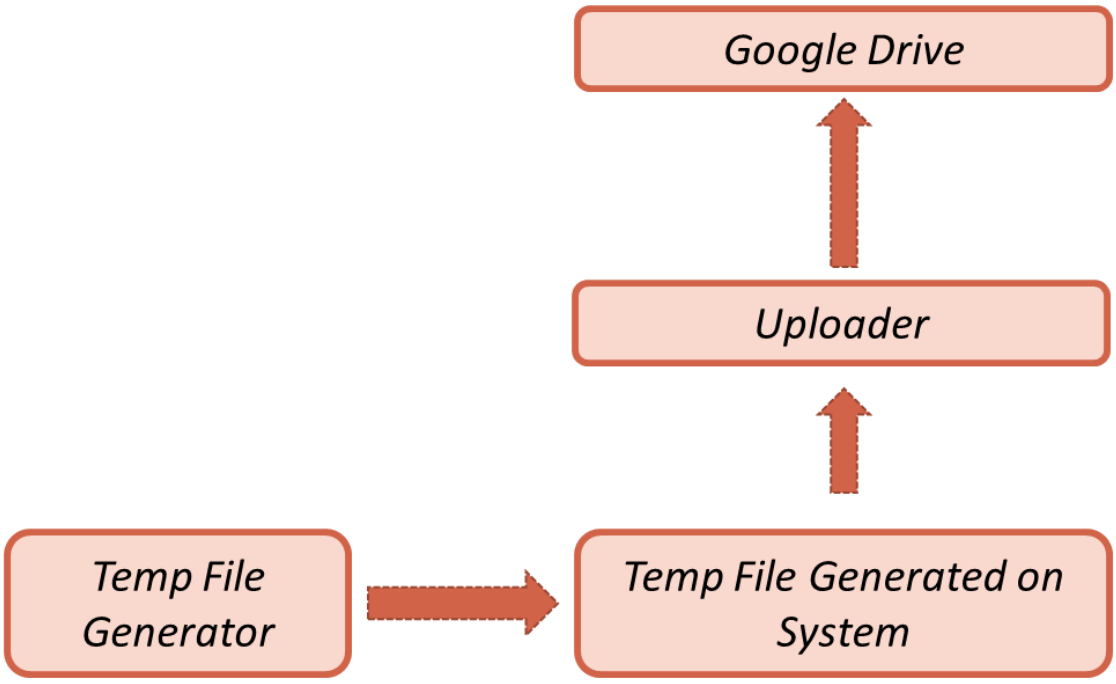
Logical View For Ubuntu Operating System



Process View For Windows Operating System

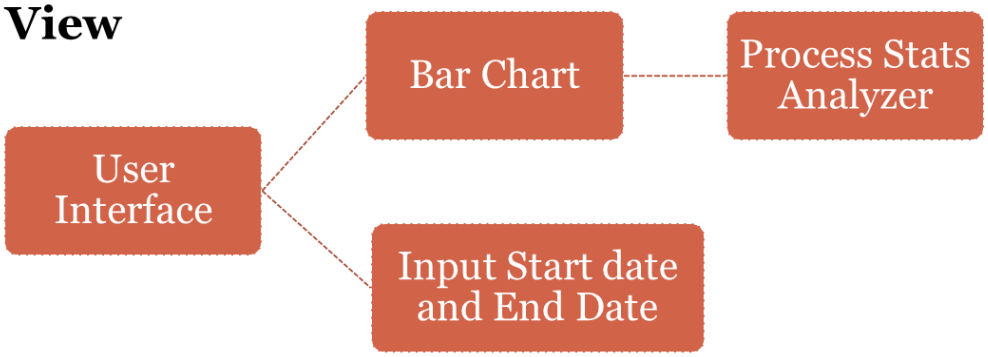


Process View For Ubuntu Operating System

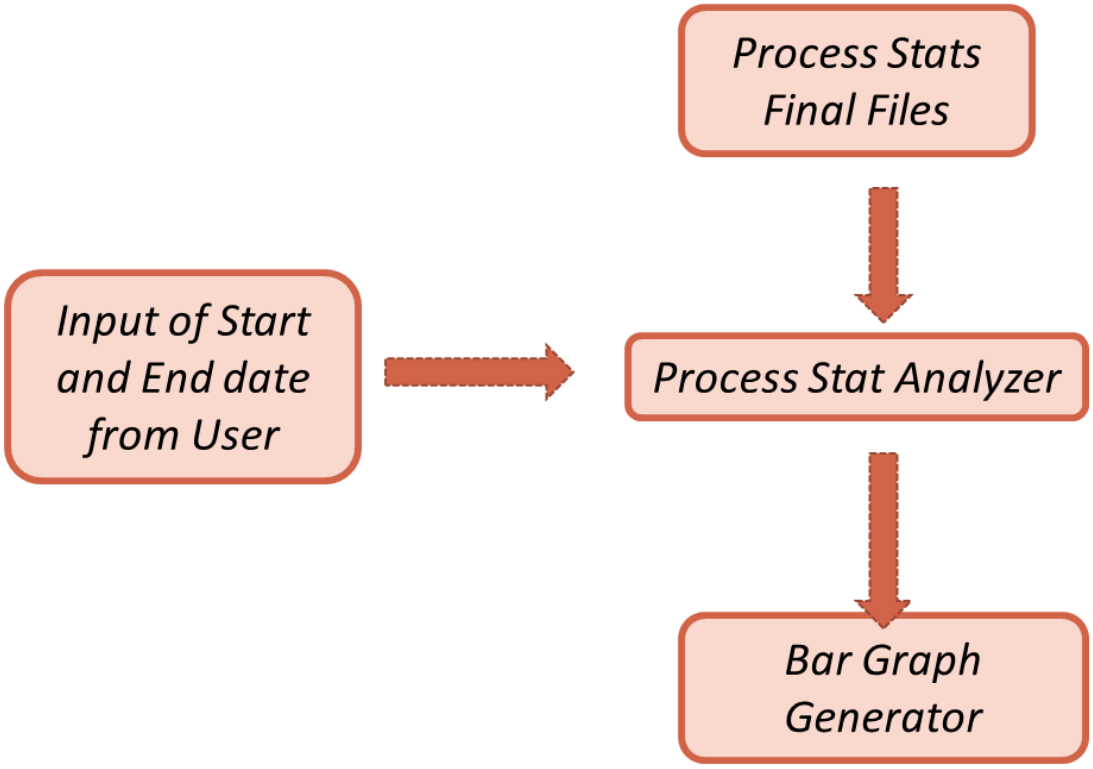


8. ***As a*** *user* ***I want*** *to know which are the main processes I have used over a span of time*
Scenario 1*: Easy Analysis of Processes used*
Given *my activities are logged for some days*
When *I open my log*
Then *I should be able to analysis which processes I have used for maximum period of time for some specified dates.*

Logical View

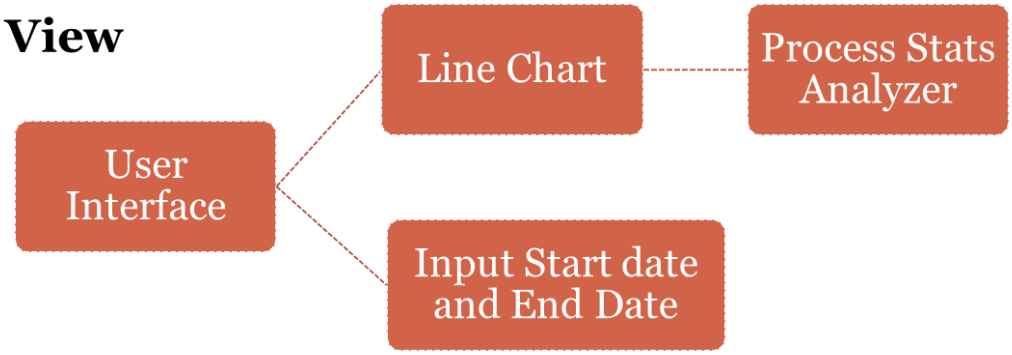


Process View

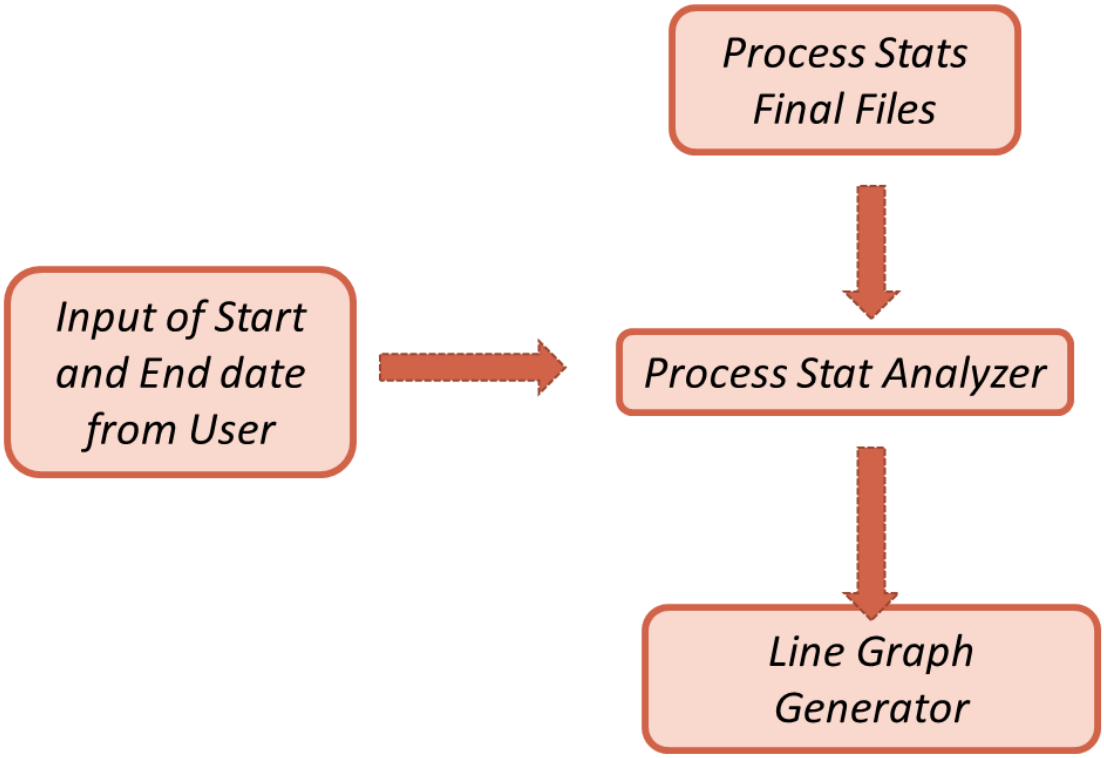


9. ***As a user I want to analyse how much time I have spent on Computer in given period of time.***
   Scenario 1: Easy Analysis of time spent on Computer
   Given my activities are logged for some days
   When I open my log
   Then I should be able to analysis how much time I have spent on Computer over a period of time and analyse increase or decrease in it

Logical View



Process View



Learning

Technically we learned C# language, WPF apps, .NET framework. We practiced software engineering methodologies throughout the project which helped us in better design of the application.

Future Scopes

Many features could be added still to help user analyse logs effectively. For Ex. Chart based on process name, Time spend on some particular project, movies could be summed into one category, etc. Also we could add blocking feature. If user knows he is wasting time on some particular process then he could put time limit per day or even block the process. Only after very rigorous test passing user could use that process in that day again.