Hidden Hurdles

(CS5542-Big Data Analytics and Apps)

By

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Hidden Hurdles

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1. Introduction:

In the recent years there is rapid growth in the field of Artificial Intelligence. There is a huge amount of research done in the field of Machine Learning and lot more new strategies have been proposed in the recent times with which we can achieve more than before.

2. Project Objectives:

2.1 Significance:

The aim of our application is to challenge the user to find out the hidden objects lying uncovered in a particular place. This also helps players to get out of their stressed life and to provide relaxation for a certain time. On further implementation the same technique can be used in wider range of applications which helps the user to search for the objects that were left unnoticed.

2.2 Features: Use Case/Scenario:

Here we considered a simple room structure as our use case and have collected a data set of images that usually appear in every living room of an individual. Here user scans the image and sends the same as an input to the program. Program processes the images and checks with the actual result and throws out the result either its correct or not.

3. Approach:

3.1 Data Sources:

Here we considered a set of images that usually exist in a living room of any individual.

We have captured images from different data sources like:

- Caltech 256 Data set
- Canstockphoto.com
- Personally Captured images

3.2 Analytic Tools:

We have used MongoDB, Google conversation API, Clarifai API, Spark tools for our application.

3.3 Analytical Tasks:

We have to analyze a particular image given as an input by the user using Image Analysis algorithm in Spark and produce an output which is then compared to the desired output.

3.4 Expected Input/Output:

The input to our application will be an image captured by the user which gets processed and gives us the annotations of the image. These annotations are then checked with the desired output and the final results will be a Yes or a No.

3.5 Algorithms:

For image classification technique we have used Random Forest decision tree algorithm.

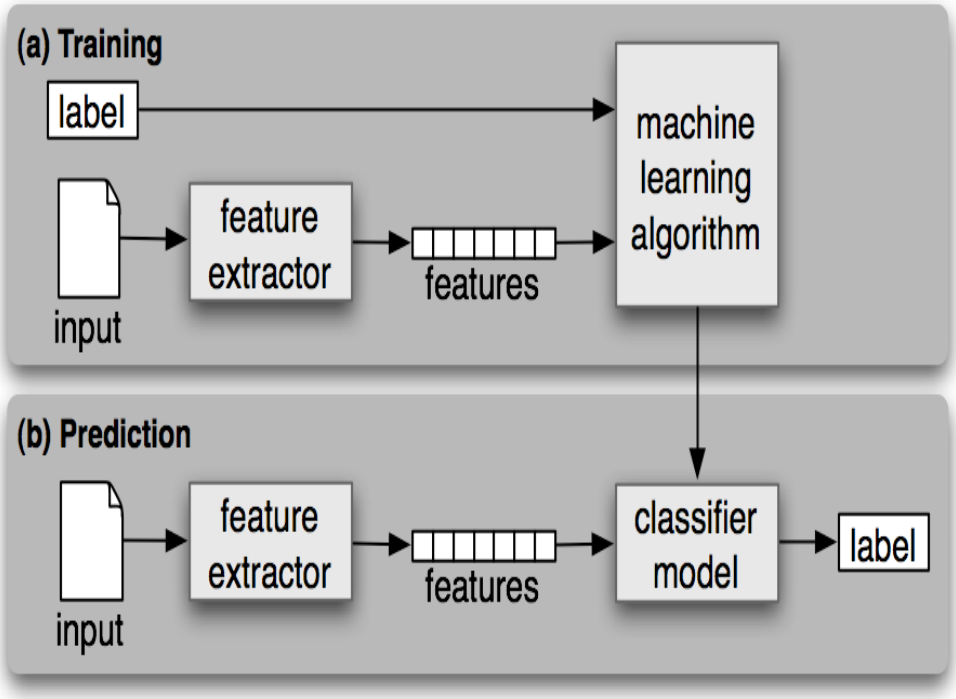
4. Related Work:

As for now we have considered the content that was presented to us in our lab tutorials and taking the same as reference in making our application.

5. Application Specification:

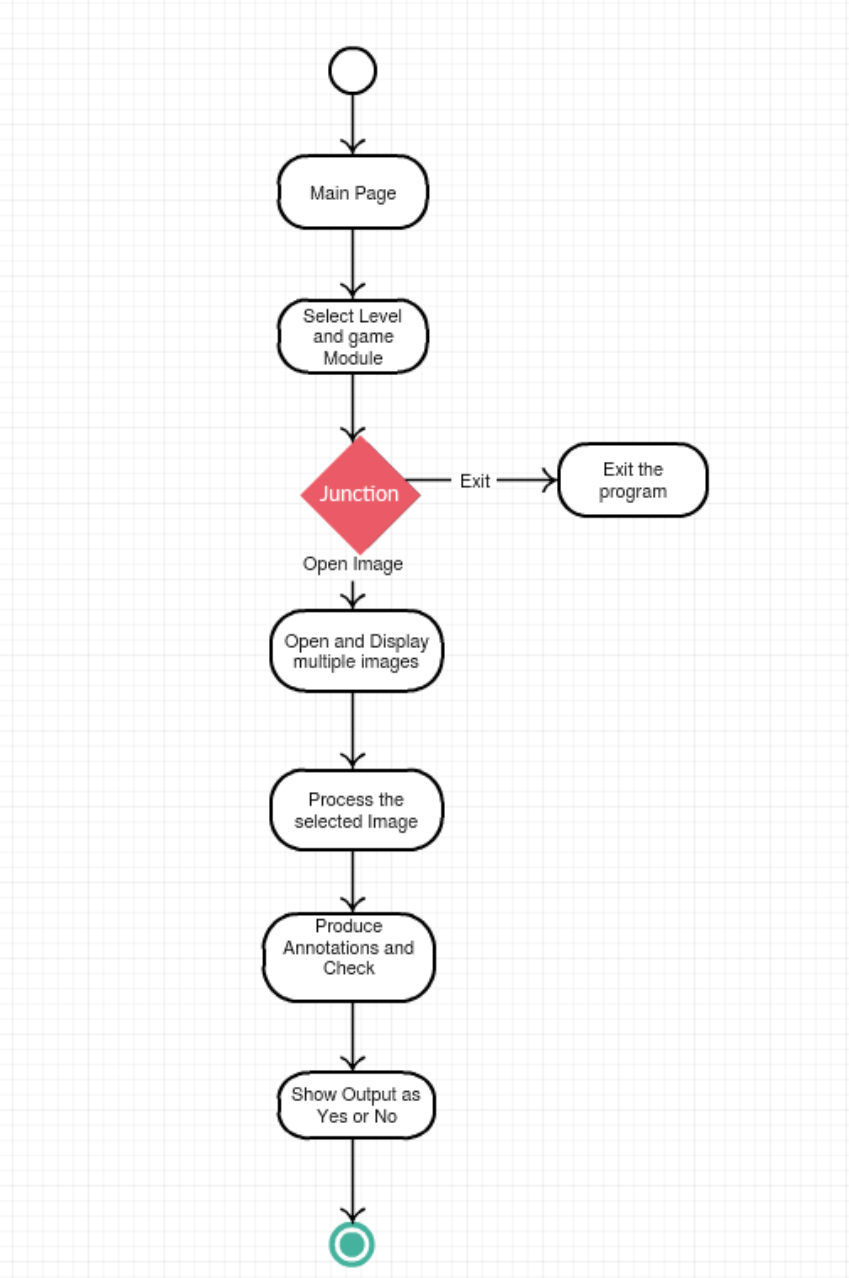
5.1 System Specifications:

5.1.1 Software Architecture:

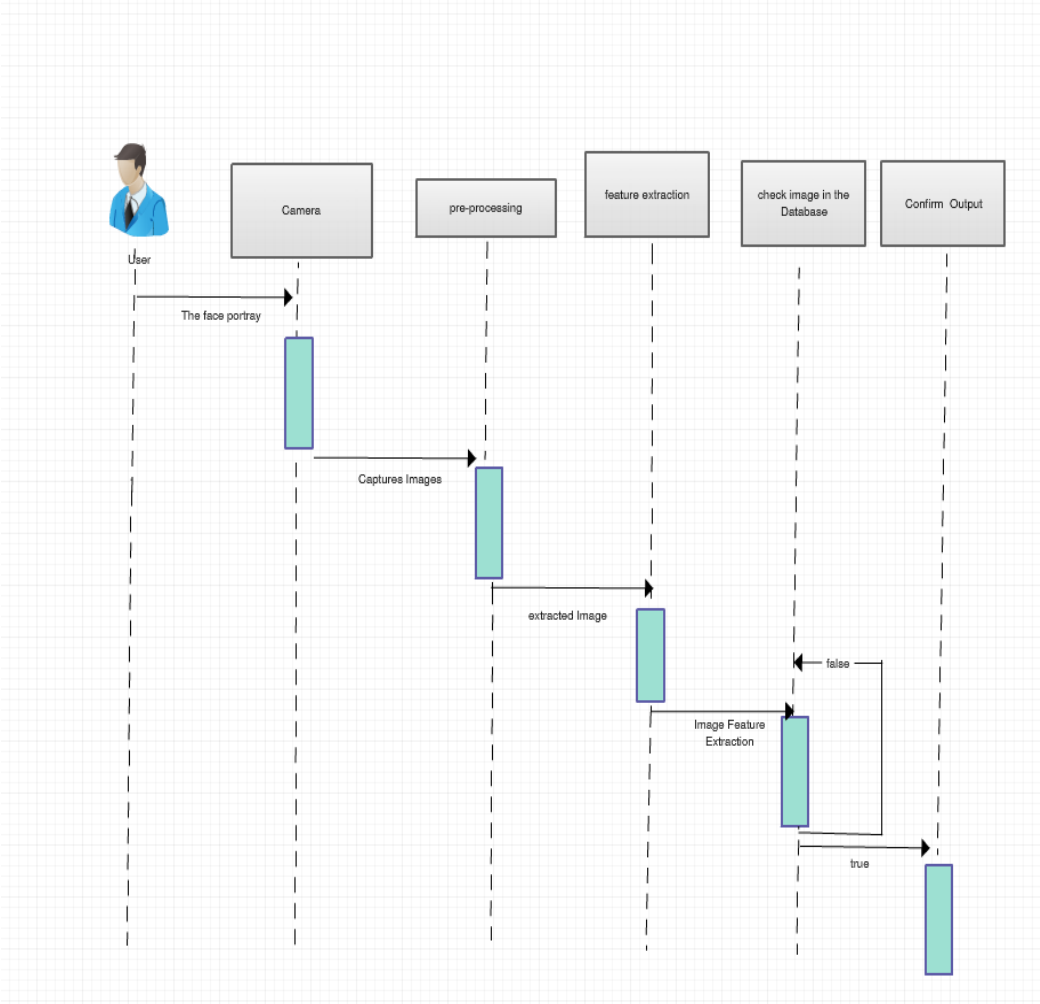


5.1.2 Features, workflow, technologies

Activity Diagram:



Sequence Diagram:



Feature Specification:

- Capturing a random image and identifying the object in it.
- Creating different levels for users.
- Providing with two different modules.
- Incrementing the score for every correct result.
- Providing user with some kind of help in form of hints.

Operation Specification:

- Image is given as input.
- Annotation of the image is given as an intermediate output.
- This annotation then checked with our desired result and gives a Yes or No as final output.

5.2 Existing Applications/ Services Used: Name, Description, URL:

- **Clarifai API:**
  It provides a RESTful API to process the images and video and generate annotations from the processed data. It provides the output in the form of JSON.
- **Google Conversation API:**
  It is a web simulator which allows communicating and getting responses. In this we create the input in MLAB and generate the heroku URL by deploying the application in heroku. This is deployed in web simulator through API.AI and generate the outpuyt.

6. Implementation:

As a part of the implementation we have implemented web application which contains start page and modules in the hidden hurdles game.

We then implemented Clarifai API for categorizing the images and then detecting the key frames and finding annotations in the images.

From the annotations obtained, based on the accuracy of prediction we have found out the type of image accurately.

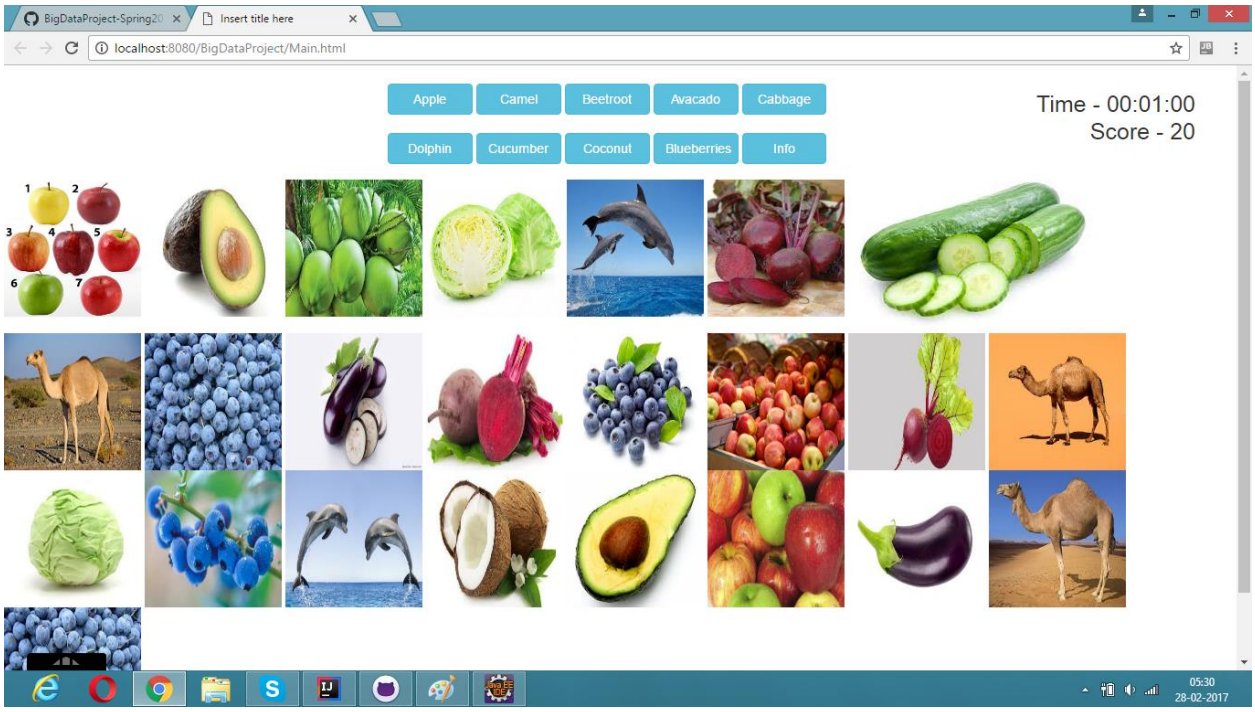
We have created different data sets and trained the model with that data sets collected and implemented the image testing on that model

7. Documentation:

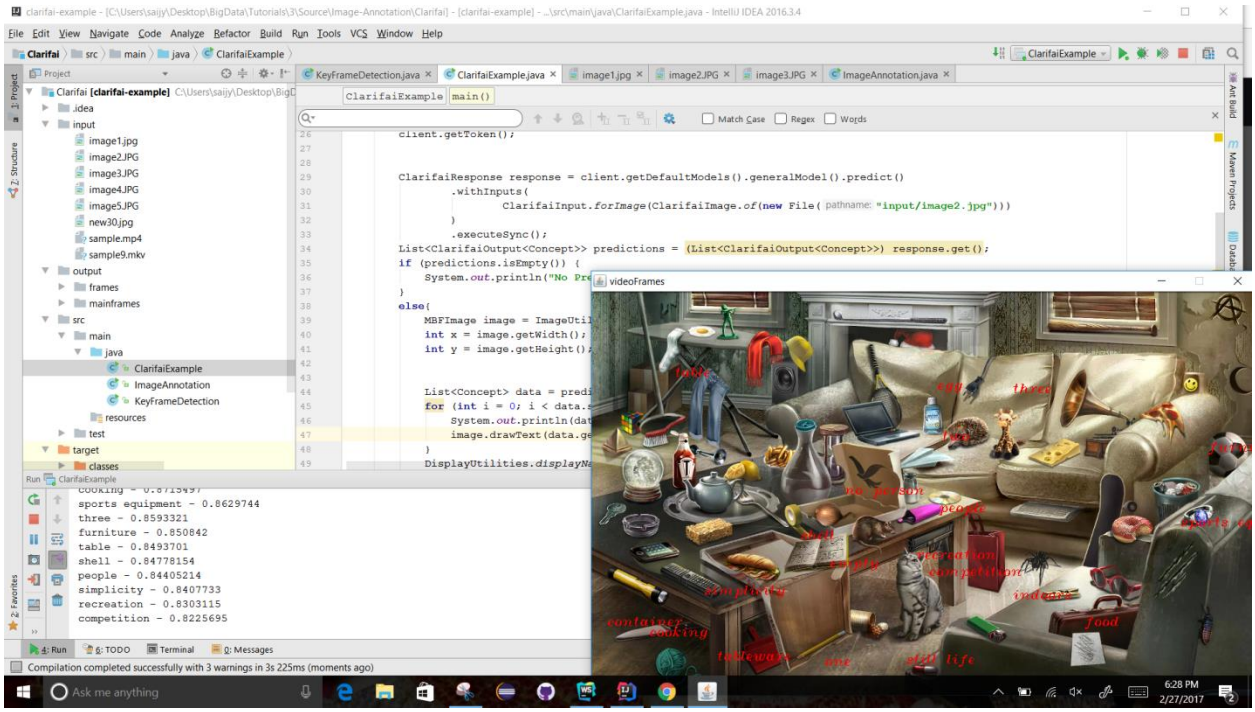
Screenshots:

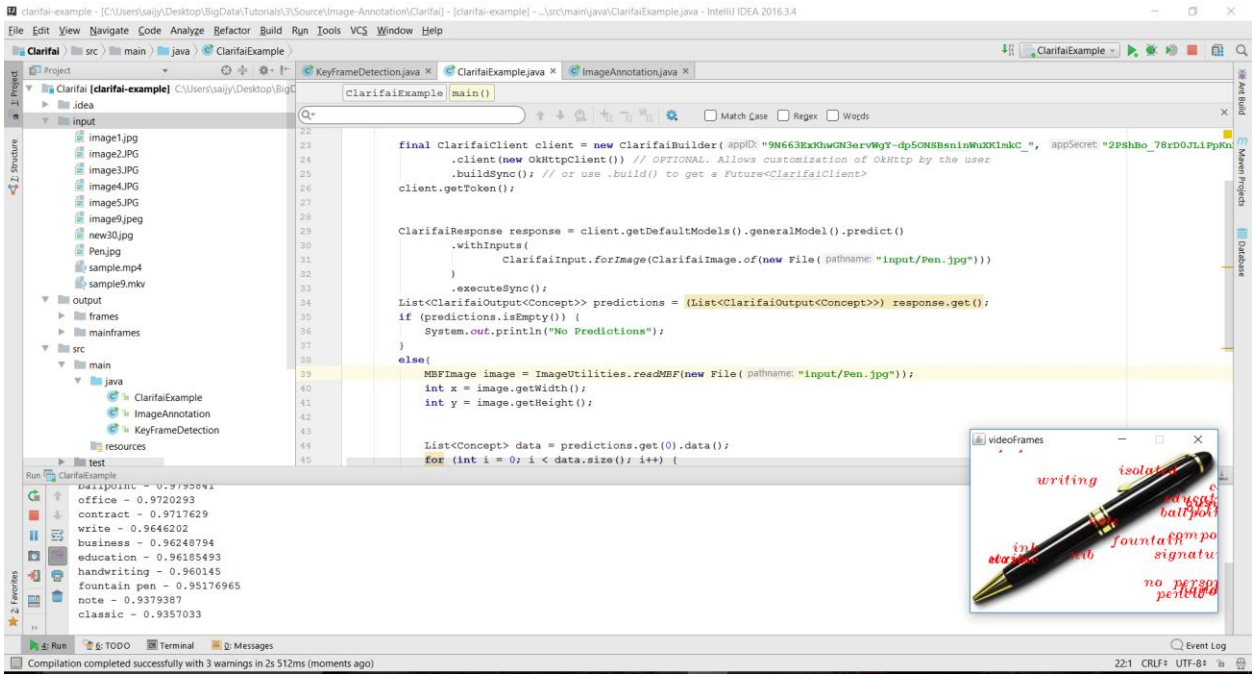
Modules Page:

Level Page:



Clarifai API:





8. Project Management:

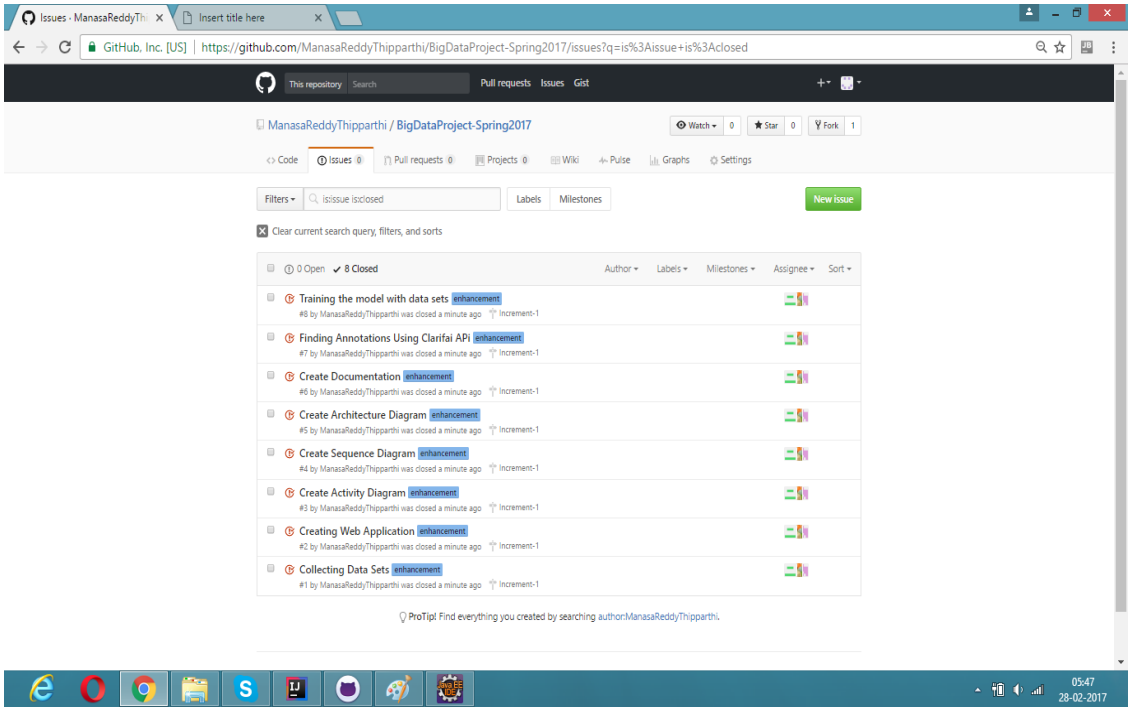
Github URL:

https://github.com/ManasaReddyThipparthi/BigDataProject-Spring2017/

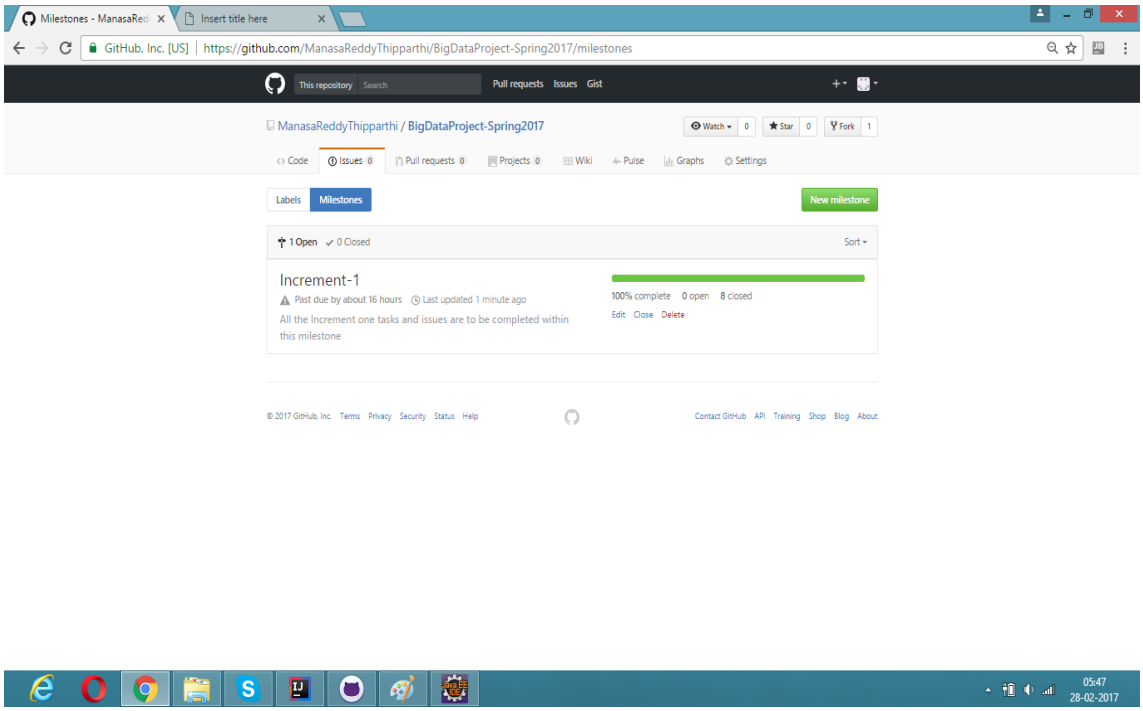
Zenhub Report:

The following screenshots represent the project management Zenhub report

Issues:


Issues · ManasaReddyTh
Insert title here
GitHub, Inc. [US] | https://github.com/ManasaReddyThipparthi/BigDataProject-Spring2017/issues?q=is%3Aissue+is%3Aclosed
This repository
Search
Pull requests
Issues
Gist
ManasaReddyThipparthi / BigDataProject-Spring2017
Watch 0
Star 0
Fork 1
Code
Issues 0
Pull requests 0
Projects 0
Wiki
Pulse
Graphs
Settings
Filters
is:issue is:closed
Labels
Milestones
New issue
Clear current search query, filters, and sorts
0 Open
8 Closed
Author
Labels
Milestones
Assignee
Sort
Training the model with data sets enhancement
#8 by ManasaReddyThipparthi was closed a minute ago Increment-1
Finding Annotations Using Clarifai API enhancement
#7 by ManasaReddyThipparthi was closed a minute ago Increment-1
Create Documentation enhancement
#6 by ManasaReddyThipparthi was closed a minute ago Increment-1
Create Architecture Diagram enhancement
#5 by ManasaReddyThipparthi was closed a minute ago Increment-1
Create Sequence Diagram enhancement
#4 by ManasaReddyThipparthi was closed a minute ago Increment-1
Create Activity Diagram enhancement
#3 by ManasaReddyThipparthi was closed a minute ago Increment-1
Creating Web Application enhancement
#2 by ManasaReddyThipparthi was closed a minute ago Increment-1
Collecting Data Sets enhancement
#1 by ManasaReddyThipparthi was closed a minute ago Increment-1
ProTip! Find everything you created by searching author:ManasaReddyThipparthi.
05:47
28-02-2017

Milestones:


Milestones · ManasaRed
Insert title here
GitHub, Inc. [US] | https://github.com/ManasaReddyThipparthi/BigDataProject-Spring2017/milestones
This repository
Search
Pull requests
Issues
Gist
ManasaReddyThipparthi / BigDataProject-Spring2017
Watch 0
Star 0
Fork 1
Code
Issues 0
Pull requests 0
Projects 0
Wiki
Pulse
Graphs
Settings
Labels
Milestones
New milestone
1 Open
0 Closed
Sort
Increment-1
Past due by about 16 hours
Last updated 1 minute ago
All the Increment one tasks and issues are to be completed within this milestone
100% complete
0 open
8 closed
Edit
Close
Delete
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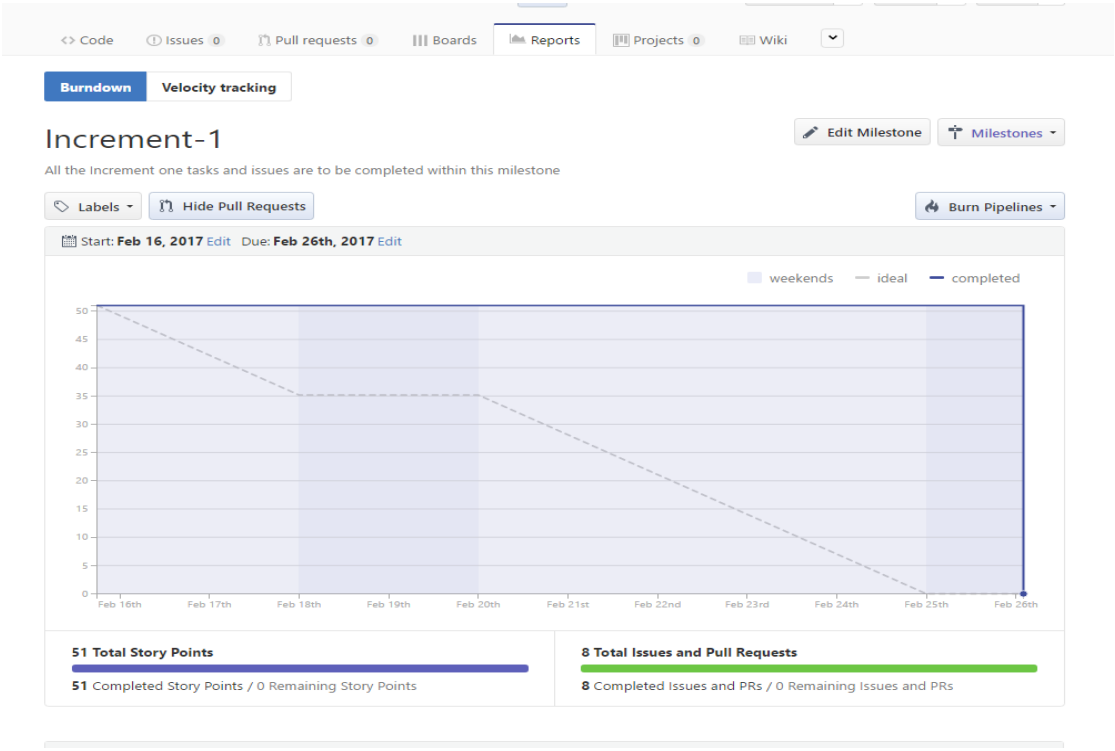
28-02-2017

Burndown Chart:



Team Members Contribution:

40 - Thipparthi, Manasa T – 25%

12 - Gudibandi, Saijyothi – 25%

33 - Puthana, Sujitha – 25%

10 - Golla, Sri Harsha Kumar Raja – 25%

Future Work:

- Image Classification
- Mash up of Web Application and Image Prediction
- Web Simulator Implementation