

Decision Making for Computation Offloading in Mobile Cloud Computing

Anil Kumar, Aniruddha Shrikhande and Anand Deshmukh

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**Supervisor Name - Prof. Shashikala Tapaswi,
Dr. Neetesh Kumar**

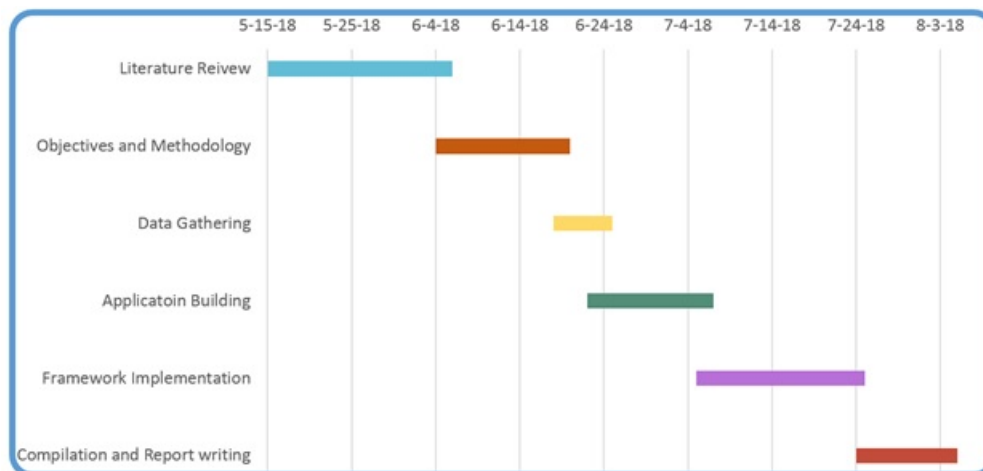
1 Thesis Objective(s)

We aim to improve the performance of the currently available decision making methods for Computation offloading in Mobile Cloud Computing.

These days, mobile devices are used to perform heavy tasks. This means if the smartphone tries to deliver the output using its local resources, it will deteriorate its performance. Its battery life, processing capabilities and storage space will degrade. On the other hand, if we let all the tasks to be offloaded on to the cloud, it will cause other significant problems such as high time response and more data usage for communicating with the servers on the cloud. In short, a user will not be satisfied with his experience.

Hence, a need for a dynamic and efficient decision maker arises which will try to predict when to offload a resource intensive task on to the cloud as accurately as possible.

2 Gantt Chart



3 Activities Completed

We have completed the prototype of our Android application. This will be used for collection of parameters involved in our data-set. Some of the parameters are computation time, network latency , CPU usage percentage, etc. We have also established our server on local-host. This was accomplished by running a server-side script created in Python in a virtual environment. The process of gathering data has also been started.

4 Intermediate Results

We tried 3 types of server scripts to achieve maximum capacity of computation and decided to use Tensorflow with Python. The prototype application has two options to make data gathering simple. First, offline computation which lets the application use the hardware resources and give back the computation time. Similarly, there is offload computation option to use the server side resources and get back the total computation time. The total time involved in the latter case is equal to the sum of the computation time on the server and the total communication time both back and forth.

5 Future Activities

Data-set preprocessing and MLP training are the two most important future activities that are left. Currently Data-set values are being gathered using the prototype application. Next, we will train our Decision Making agent using MLP. After that, we have to make changes in the application to make it a self

decision making app. Finally, we have to implement our agent in the application and collect the results.

6 References

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