Software Engineering

SOPHISTICATION
VALUE OF THE PROJECT

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Sophistication Value of the Project:

In this research project we have devised an algorithm to predict the relationship (any kind of relationship) between any pair of given bugs. This algorithm takes input from all the previous relationships between the bugs and predicts the extent of any new relationship between any new pairs of bugs. Therefore we have two main aspect of the project here:

1) **Similarity Prediction**- Given any pair of bugs the algorithm can predict the probability of these two bugs to have any kind of relationship in future.
2) **Type of relationship** - Given any pair of bugs the algorithm can predict the probability of the type of relationship they are going to have in future. The one with the highest probability is generally the type of relation or edge the pair of bugs is going to have.

Approach:

Nowadays the world is all connected with various technologies and one such is the social networks like Instagram, Facebook, etc. Most of the users nowadays use any of these things. Many of them are connected with their friends through such sites. A user connected to such sites is always in search of making new friends. In many social networking sites like Facebook, there is

always a tab where any user can see their friend suggestions suggested by Facebook. And to be honest these friends' suggestions are most of the time true. But how does Facebook know this possibility that a user might be his/her friend? This led our group into this project which tries to use the similar approach in tracing and identifying bug relations.

In facebook if we consider a user as a node then the relations between any user can be considered as edge. Thus the whole structure looks like a graph. The characteristic of an edge and node is completely different, thus called Heterogeneous graph. The bugs have different types of relationships. Therefore we have tried to predict the relationship possibility for each kind of relationship type for any pair of bugs. Therefore we have devised an algorithm that takes input from all the previous relationships between the bugs and predicts the extent of any new relationship between any new pairs of bugs similar to the technology used by any Social networking sites.

Application:

Our project is associated with lots of applications. One such application is the Social Networking sites. The algorithm used here is mostly similar to the ones used for such sites except that their algorithm can withstand numerous processing of data (due to the large and complicated system they use) whereas ours does the same work taking a bit of extra time.

Second application is the way it helps developers to keep track of bugs. Every new software is ought to have any bug and these bugs might create any problem in future. Thus keeping its track and noting down its behaviour is a key aspect to protect the software from such bugs and thus its action are to be predicted beforehand. Thus knowing the type and its relation with other bugs the developer can work upon these bugs easily.