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ii1. **Bugs**: A software bug is an error, flaw, failure, or fault in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways.

ii2. **Bug tracking system**: A bug tracking system is a software application that keeps track of reported software bugs in software development projects.

ii3. **Gradient Descent**: Gradient descent is a first-order optimization algorithm. To find a local minimum of a function using gradient descent, one takes steps proportional to the negative of the gradient (or of the approximate gradient) of the function at the current point.

ii4. **Similarity Measure**: A similarity measure is a real-valued function that quantifies the similarity between two objects. Usually similarity measures are in some sense the inverse of distance metrics: they take on large values for similar objects and either zero or a negative value for very dissimilar objects.

iii1. **Motivational Statements**:

Bug reporting however is an uncoordinated distributed process. End users and testers might report the same defects many times in the bug reporting system. This causes an issue as different developers should not be assigned the same defect. Figuring out which bug reports are duplicate of others is typically done manually by a person called the triager. The triager would detect if a bug report is a duplicate; if it is, the triager would mark this report as a duplicate report and the first report as the master report. This process however is not scalable for systems with large user base as the process could take much time. one bug report might only provide a partial view of the defect, while multiple bug reports can complement one another. Thus, in this study, we focus on providing a technique that could help in linking bug reports that are duplicate of one another.