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## Design Pattern Detection by Using Cosine Similarity Technique

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### Abstract

### Abstract:

Design pattern detection (DPD) is a reengineering task that is used in the object-oriented software development process. It is helpful to software developers to easily understand, maintain, and redevelop software. In this paper, we have applied a new technique for design pattern detection by using the cosine similarity technique (CST). Usually, the cosine similarity technique is used to find the similarity between 2 matrices. However, in this paper, we apply the cosine similarity technique for finding the similarity between the design pattern graph to system model graph.

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#### IV. Cosine Similarity Technique

#### V. Algorithm of Design Pattern Detection Using Cosine

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### Detection Using Cosine Similarity

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### I. Introduction

The design pattern is widely used to solve the recurring occurring problem in the object-oriented software development process. Design pattern detection is useful for new software developers. According to Gang-of-Four [1], design patterns are 23 types that are split into 3 categories: creational, structural, and behavioral. They help to implement the OOPs by the new software developer, enough pattern-related information and design information. With the help of design pattern detection, we can easily trace out the pattern instances. Several pattern detection techniques are applied: some of them

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