

# **GENERATING EFFECTIVE TEST SUITE SIZE USING SIMILARITY BASED GREEDY APPROACH**

**A PROJECT REPORT**

*Submitted by*

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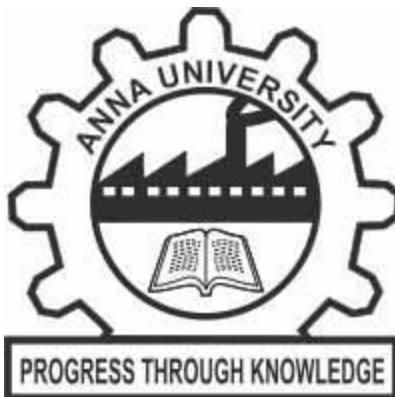
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*In partial fulfillment for the award of the degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**INFORMATION TECHNOLOGY**



**UNIVERSITY COLLEGE OF ENGINEERING**

**BIT CAMPUS**

**TIRUCHIRAPPALLI-620 024**

**APRIL-2019**

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**BONAFIDE CERTIFICATE**

Certified that this report titled “**GENERATING EFFECTIVE TEST SUITE SIZE USING SIMILARITY BASED GREEDY APPROACH**” is the bonafide work of Ms. **P.AMMU (810015205004)** and Ms. **M.BHARATHI (810015205015)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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## DECLARATION

We hereby declare that the work entitled “**GENERATING EFFECTIVE TEST SUITE SIZE USING SIMILARITY BASED GREEDY APPROACH**” is submitted in partial fulfillment of the requirement for the award of the degree in B.E., University College of Engineering, BIT Campus, Anna University, Tiruchirappalli, is record of our own work carried out by us during the academic year 2018-2019 under the supervision and guidance of **Dr.C.P.INDUMATHI**, Assistant Professor , Department of Computer Science and Engineering, University College of Engineering, BIT Campus, Anna University, Tiruchirappalli. The extent and source of information are derived from the existing literature and have been indicated through the dissertation at the appropriate places. The matter embodied in this work is original and has not been submitted for the award of any degree, either in this or any other University.

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## ACKNOWLEDGEMENT

It is the great opportunity to express our sincere thanks to all the people who have contributed to the successful completion of our project work through their support encouragement and guidance.

Our first and foremost thanks to **Dr. T. SENTHIL KUMAR**, Dean, University College of Engineering, BIT Campus, Anna University, Tiruchirappalli for their support in doing this project.

It is our privilege to render our sincere thanks to **Dr. D.VENKATESAN**, Head of the department of Computer Science and Engineering, University College of Engineering, BIT Campus, Anna University, Tiruchirappalli for providing us with excellent lab facilitates and ideas.

We wish to record our heartfelt gratitude to our esteemed guide **Dr.C.P.INDUMATHI**, Assistant Professor, Department of Information Technology, University College of Engineering, BIT Campus, Anna University, and Tiruchirappalli for his excellent guidance, enterprising and valuable suggestions, encouragement and inspiration offered throughout the project.

It is our responsibility to thank our project coordinator **Mr. M.PRASANNA KUMAR**, Teaching fellow, Department of Computer Science and Engineering, deserves a special vote of thanks for his constant inspiration that he has been all through the project period. I render my heartfelt thanks to our entire department teaching and non-teaching staff for their enthusiastic encouragement and support throughout this project.

I hearty thank to my friends for helping me in this project directly or indirectly helped me in making this project a complete success.

## **ABSTRACT**

In Software development life cycle regression testing plays a major role for detecting faults. Testing has different levels to execute the software product prior to delivery to the customer. Testing a software product involves to testing the large number of test cases. As the software modified, new test cases are added to the test suite, the test suite grows and the cost of regression testing increases. This paper defines a technique to solve these problems and make the testing cost effective. We introduce a set of test case coverage metrics which will quantitatively calculate the diversity between any test case pair of an existing test suite. Here the procedure mainly focus on Block coverage, Control flow coverage, Def-use coverage, Data flow coverage values, Using these information signature values is calculated to find how much the test cases are diverse from each other. The similar test case values are considered as duplicate test cases and the remaining diverse test cases are passes through the Control Flow Graph (CFG) for minimization. Similarity Based Greedy Approach (SBGA) are used to done the minimization techniques. The next phase of path coverage is proposed for prioritization. The result of both minimization and prioritization used to find out the optimal test suite size. This approach can be beneficial for tester to solve the regression testing problems.

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## **LIST OF ABBREVIATIONS**

1	ART	ADAPTIVE RANDOM TESTING
2	ATAC	AUTOMATIC TEST ANALYSIS FOR C
3	CBR	CASE BASED REASONING
4	CFG	CONTROL FLOW GRAPH
5	DFD	DATA FLOW DIAGRAM
6	DSDM	DIANAMIC SYSTEM DEVELOPMENT METHOD
7	FDL	FAULT DETECTION LOSS
8	ILP	INTEGER LINEAR PROGRAMMING
9	MBT	MODEL BASED TESTING
10	OOAD	OBJECT ORIENTED ANALYSIS AND DESIGN
11	SBGA	SIMILARITY BASED GREEDY APPROACH
12	SSR	SUITE SIZE REDUCTION
13	SSADM	STRUCTURED SYSTEM ANALYSIS AND DESIGN METHOD
14	SUT	SYSTEM UNDER TEST
15	TCS	TEST CASE SELECTION