# 实验报告模板

华南理工大学

《课程名称》课程实验报告

实验题目：4.To solve Related Problems with Tree Search Algorithm

姓名：ZULKARNINE MOHAMMED SHAHLA,CHRISTOPHER GABRIEL PINHIERO,GLIGOROVSKI NIKOLA,TADESSE ABEL MASRESHA

学号:201869990129, 201869990420,201869990252, 201869990725

班级： 组别：

合作者：

指导教师：

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| **实验概述** |
| 【Purposes and requirements】  Purpose:  To solve minimum spanning tree problem with prims greedy algorithm  Requirements:  GNU GCC compiler and a text editor  【lab environment】  OS：Windows 10 |
| **实验内容** |
| 【experiment procedure】  For question 4 we used breadth first search and depth first search as an example.  BFS : - in BFS we cover all the adjacent edges of a node before we move on to the next node.  **Step 1:** SET STATUS = 1 (ready state) for each node in G  **Step 2:** Enqueue the starting node A and set its STATUS = 2 (waiting state)  **Step 3:** Repeat Steps 4 and 5 until QUEUE is empty  **Step 4:** Dequeue a node N. Process it and set its STATUS = 3 (processed state).  **Step 5:** Enqueue all the neighbours of N that are in the ready state (whose STATUS = 1) and set their STATUS = 2 (waiting state) [END OF LOOP]  **Step 6:** EXIT  DFS : - in DFS we will start with one adjacent edge and keep choosing the best adjacent edge until we cover the full depth of the first node. Then will take the second edge if there is and we will continue to do the same thing.  **Step 1:** SET STATUS = 1 (ready state) for each node in G  **Step 2:** Push the starting node A on the stack and set its STATUS = 2 (waiting state)  **Step 3:** Repeat Steps 4 and 5 until STACK is empty  **Step 4:** Pop the top node N. Process it and set its STATUS = 3 (processed state)  **Step 5:** Push on the stack all the neighbours of N that are in the ready state (whose STATUS = 1) and set their STATUS = 2 (waiting state) [END OF LOOP]  **Step 6:** EXIT |
| **小结** |
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| **指导教师评语及成绩** |
| 评语：  成绩：           指导教师签名：                                                 批阅日期： |