**深 圳 大 学 实 验 报 告**

**课程名称：­ 计算机网络**

**实验项目名称： Transport Layer Assignment**

**学院： 电子与信息工程学院**

**专业： 电子信息工程**

**指导教师： 毕宿志**

**报告人： 陈闻天 学号： 2023280259**

**班级： 04**

**实验时间： 2024年11月26日**

**实验报告提交时间： 2024年12月9日**

**教务处制**

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| Aim of Experiment:   1. Learn the Dijkstra algorithm and implement it using python 2. Learn the Distance-Vector and implement it using python |
| Experiment Content:   1. Write a python script to implement Dijkstra algorithm 2. Write a python script to implement Distance-Vector |
| Experiment Process：   1. Dijkstra algorithm:    1. Log all information about the cost    2. Define a class which includes the attributes and methods used for Dijkstra algorithm    3. Initialize exam list and choose node with the minimum cost from exam list    4. Update the path list    5. Loop until the best path list is got    6. Output one of nodes ‘s best path list    7. Output the best path from a node to another node    8. Output best path list of all nodes 2. Distance-Vector:    1. Log all information about the cost    2. Define a class which includes the attributes and methods used for Distance-Vector    3. Initialize distance table    4. Calculate and update the distance table using the information from neighbor node    5. Transfer the distance table to neighbor node when its distance table is updated    6. Loop until the best distance table is got    7. Loop until the best path list is got    8. Output one of nodes ‘s best distance table    9. Output the best path from a node to another node |
| Data Logging and Processing:   1. Dijkstra algorithm:    1. Data about cost    2. The update of exam list:    3. The update of best path list: 2. Distance-Vector:    1. The update of distance table: |
| Experimental Results and Analysis:  Results:   1. Dijkstra algorithm:    1. Show the best path list of a node, for example, we can get best path list of 5 node:        2. {x: [y, z]}, x is destination node, y is the minimum cost, z is previous node to arrive the destination node    2. Show the path from a node to another node:    3. Show the best path list of all nodes:        2. {x: [y, z]}, x is destination node, y is the minimum cost, z is previous node to arrive the destination node 2. Distance-Vector:    1. Show the distance list of a node:    2. Show path and cost from a node to another node:   Analysis:   1. Dijkstra algorithm:    1. The disadvantage of it is the state of all nodes must be got before the calculation, which is a big challenge for large network    2. The advantage of it is calculation is easily and quickly if the information needed are held 2. Distance-Vector:    1. The disadvantage of it is much calculation are executed while the best path list is building    2. The advantage of it is that it can start without the state of all nodes |
| 指导教师批阅意见：  成绩评定：  指导教师签字：  年 月 日 |
| 备注： |

注：1、报告内的项目或内容设置，可根据实际情况加以调整和补充。

2、教师批改学生实验报告时间应在学生提交实验报告时间后10日内。