**EXERCISE – 7**

**Name – Bhavy Kharbanda**

**SAP ID – 500082531**

**Roll Number – R214220342**

**Batch – B11**

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OPERATING SYSTEM LAB

EXERCISE – 7

Dinning Philosopher’s Problem

**AIM: To implement dinning philosopher’s problem.**

**Theory:-**

**Five philosophers are seated around a circular table. Each philosopher has a place of spaghetti and he needs two forks to eat. Between each plate there is a fork. The life of a philosopher consists of alternate period of eating & thinking. When a philosopher gets hungry, he tries to acquire his left fork, if he gets it, it tries to acquire right fork.**

**In this solution, we check after picking the left fork whether the right fork is available or not. If not, then philosopher puts down the left fork & continues to think. Even this can fail if all the philosophers pick the left fork simultaneously & no right forks available & putting the left fork down again. This repeats & leads to starvation.**

**Now, we can modify the problem by making the philosopher wait for a random amount of time instead of same time after failing to acquire right hand fork. This will reduce the problem of starvation.**

**Algorithm:-**

**Step1: Start the program.**

**Step2: Move from thinking to hungry (to simplify the analysis we assume that philosophers always become hungry).**

**Step3: When hungry, randomly choose to try and pick up the left or right fork.**

**Step4: Wait until the fork is down and then pick it up.**

**Step5: If another fork is free, pick it up; otherwise, put the original fork down (return to step 2).**

**Step6: Eat (since in possession of both forks).**

**Step7: When finished eating, put both forks down in any order and return to thinking.**

**Step8: Stop the program.**

**Code:-**

**Screenshot/Output:-**

**\*\*\*\*\*\*\*End of Exercise – 7\*\*\*\*\*\***

Thank You