

**Puranmal Lahoti Government Polytechnic, Latur**

**A Micro Project On**

**“Detect and prevent deadlock”**

In

**Information Technology**

By

**Dhanashri Janhavi**

**Dhone Meera**

**Didwal Shweta**

**Khobare Rutuja**

**Mane Tanuja**

Under The Guidance Of

**Mr.Satish.Mali**

**Department of Information Technology**

**CERTIFICATE**



**Puranmal Lahoti Government Polytechnic, Latur**

**2023-2024**

**This is to certify that the micro project entitled “Detect and prevent deadlock” has been submitted under the guidance of Mr. Satish Mali in partial fulfillment of the requirement for the award of diploma of engineering in Information Technology from Maharashtra State Board of Technical Education.**

Place: Latur Enrollment no:-

2100160354

2100160356

2100160358

2100160372

2100160379

Date:

**Subject Teacher HOD**

**Principal**

**Puranmal Lahoti Government Polytechnic, Latur**

**Information Technology Department**

**Subject name**: Operating System

**Semester**: IF5I

**Title**: -Detect and prevent deadlock

**Team Details**:-

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr.**  **no** | **Roll**  **No.** | **Enrollment No.** | **Name** |
| 1 | 10 | 2100160354 | Dhanashri Janhavi |
| 2 | 19 | 2100160356 | Dhone Meera |
| 3 | 23 | 2100160358 | Didwal Shweta |
| 4 | 24 | 2100160372 | Khobare Rutuja |
| 5 | 25 | 2100160379 | Mane Tanuja |

**MICROPROJECT PART-A**

**Title of Micro project:**

Detect and prevent deadlock.

1. **Aim / Benefits of the Micro project:**

* [The Aim of deadlock detection is to determine whether the system is in a deadlock state or not](https://www.bing.com/ck/a?!&&p=799bde74ad8f9464JmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4MA&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly9kZXh0dXRvci5jb20vZGVhZGxvY2stZGV0ZWN0aW9uLWFuZC1yZWNvdmVyeS8&ntb=1) .
* [A deadlock detection algorithm analyzes the status of processes and resources in the system to identify any circular dependency between the processes and resources](https://www.bing.com/ck/a?!&&p=73cdcbbda13cd2f5JmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4Mg&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly93d3cuZ2Vla3Nmb3JnZWVrcy5vcmcvZGVhZGxvY2stZGV0ZWN0aW9uLWFsZ29yaXRobS1pbi1vcGVyYXRpbmctc3lzdGVtLw&ntb=1).
* [If a deadlock is detected, the algorithm takes appropriate actions to recover from the deadlock](https://www.bing.com/ck/a?!&&p=5573fde9adb3b21bJmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4NA&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly93d3cuZ2Vla3Nmb3JnZWVrcy5vcmcvZGVhZGxvY2stZGV0ZWN0aW9uLWFsZ29yaXRobS1pbi1vcGVyYXRpbmctc3lzdGVtLw&ntb=1).

1. **Course Outcomes Addressed:-**
   1. Install Operating system and configure it.
   2. Use operating system tools to perform various functions.
   3. Execute process commands for performing process management operations.
   4. Apply scheduling algorithms to calculate turnaround time and average waiting time.
   5. Calculate efficiency of different memory management techniques.
   6. Apply file management techniques.
2. **Proposed Methodology:-**
3. In this micro project first of all we have focused on selection of appropriate topic for micro-project.
4. Select the topic i.e.,
5. Then we started with our brief study as well as a survey on our topic
6. Then we gathered all information based on the topic of micro project.
7. We have done analysis and study of our topic in detail.
8. Following all the above methodologies we successfully completed with our micro project
9. **Action Plan:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr.**  **no** | **Details of Activity** | **Plan Start Date** | **Plan Finished Date** | **Name of Responsible**  **Team Members** |
| 1 | Collect Information about micro-project |  |  | Khobare Rutuja,  Mane Tanuja |
| 2 | Analyses |  |  | Dhanashri Janhavi |
| 3 | Writing Report |  |  | Rutuja Khobare |
| 4 | Part A and Part B |  |  | Mane Tanuja |

1. **Actual Resources Used:-**

|  |  |  |  |
| --- | --- | --- | --- |
| **no.** | **Name of resource material** | **Specifications** | **Quantity** |
| 1 | Computer System | 8 GB RAM, Windows 11 OS | 1 |
| 2 | Internet | YouTube / Wikipedia |  |
| 3 | textbook/manual | OSY Operating Systems 22516 | 1 |

**MICROPROJECT PART-B**

1. **Rationale:-**

Deadlock is a situation in which two or more processes are blocked from proceeding because each is waiting for the other to release a resource. [Deadlocks can be prevented by using various techniques such as **deadlock prevention, deadlock avoidance,** and**deadlock detection and recovery**](https://www.geeksforgeeks.org/deadlock-prevention/)

1. **Aims / Benefits of the Micro project:-**
2. [The Aim of deadlock detection is to determine whether the system is in a deadlock state or not](https://www.bing.com/ck/a?!&&p=799bde74ad8f9464JmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4MA&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly9kZXh0dXRvci5jb20vZGVhZGxvY2stZGV0ZWN0aW9uLWFuZC1yZWNvdmVyeS8&ntb=1) .
3. [A deadlock detection algorithm analyzes the status of processes and resources in the system to identify any circular dependency between the processes and resources](https://www.bing.com/ck/a?!&&p=73cdcbbda13cd2f5JmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4Mg&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly93d3cuZ2Vla3Nmb3JnZWVrcy5vcmcvZGVhZGxvY2stZGV0ZWN0aW9uLWFsZ29yaXRobS1pbi1vcGVyYXRpbmctc3lzdGVtLw&ntb=1).
4. [If a deadlock is detected, the algorithm takes appropriate actions to recover from the deadlock](https://www.bing.com/ck/a?!&&p=5573fde9adb3b21bJmltdHM9MTY5Njk4MjQwMCZpZ3VpZD0zMDg5NWQyMy05N2EzLTY5MzUtMDljZS00Y2UzOTY3NjY4MGMmaW5zaWQ9NTc4NA&ptn=3&hsh=3&fclid=30895d23-97a3-6935-09ce-4ce39676680c&psq=aim+of+deadlock+detect+and+prevent+project&u=a1aHR0cHM6Ly93d3cuZ2Vla3Nmb3JnZWVrcy5vcmcvZGVhZGxvY2stZGV0ZWN0aW9uLWFsZ29yaXRobS1pbi1vcGVyYXRpbmctc3lzdGVtLw&ntb=1).
5. **Course Outcomes Achieved:-**
6. Install Operating system and configure it.
7. Use operating system tools to perform various functions.
8. Execute process commands for performing process management operations.
9. Apply scheduling algorithms to calculate turnaround time and average waiting time.
10. Calculate efficiency of different memory management techniques.
11. Apply file management techniques.
12. **Literature Review:-**

* Summarize relevant studies, projects, and research Deadlock detaction and prevention conditions.
* Highlight findings, methodologies, and technologies used in these studies.
* Deadlock detection, resolution techniques and deadlock avoidance technology typically require pre-empting resources, aborting processes or centralized resource management so they are in appropriate for many distributed real time systems that require the execution time of processes be predictable.

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1. **Actual Methodology Followed:-**
2. In this micro project first of all we have focused on selection of appropriate topic for micro-project.
3. Select the topic i.e.,Detect and prevent deadlock.
4. Then we started with our brief study as well as a survey on our topic
5. Then we gathered all information based on the topic of micro project.
6. We have done analysis and study of our topic in detail.
7. Following all the above methodologies we successfully completed with our micro project.
8. **Actual Resource Used:-**

|  |  |  |  |
| --- | --- | --- | --- |
| **no.** | **Name of resource material** | **Specifications** | **Quantity** |
| 1 | Computer System | 8 GB RAM, Windows 11 OS | 1 |
| 2 | Internet | YouTube / Wikipedia |  |
| 3 | textbook/manual | OSY Operating Systems 22516 | 1 |

1. **Output Of Micro project:-**



1. **Skill developed / learning outcomes of this Micro project:-**

1. Presentation Skill

2. Communication Skill

3. Teamwork

4. Able to install the operating system and configure it.

1. **Application of the Micro project:-**

* Develop our knowledge about how to detect and prevent of deadlock.
* Develop presentation skills

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