College of Engineering
CSC 308 – Operating System

Project Proposal

Project to be undertaken
Our decision to concentrate on "System Deadlocks" as the subject of our research was motivated by the
A system deadlock occurs when two or more processes are stalled while awaiting resources that they ea
Topics to be covered
A deadlock happens when several processes are impeded because they are all holding resources and w

Figure 1: Deadlock problem
Our research project on system deadlocks will cover a variety of topics, including the history and model o

Investigation
Our research seeks to investigate the fundamental causes of system deadlocks, particularly the four requ
Mutual Exclusion: According to this requirement, at least one resource must be stored in a non-shareable
Hold-and-wait: When a process retains one or more resources while waiting for other resources that are
No Preemption: This restriction prohibits forcefully removing resources from a process that is actively utili
Circular Wait: This state develops when a group of processes are all waiting on resources that one or mo
Development
In the development section of our project, we will be researching efficient methods and techniques to prev
Prevention: means creating the system in such a way that deadlocks are avoided. This can be accomplis
Avoidance: includes searching for potential deadlocks before distributing resources to processes. This ca
Detection and Recovery: This involves finding deadlocks and then recovering from them. This can be acc
Resource allocation: This entails distributing resources in a way that lessens the likelihood that deadlocks
prevention and Recovery: To deal with deadlocks, a mix of preventative and recovery techniques is used
Regardless of the method used, understanding the system and its needs, selecting the proper approache
Experimentation
We will use Ubuntu, a Linux-based operating system, to run the suitable application that illustrates deadlo

Figure 2: expected experimentation
Expected results
After completing our research project, we aim to apply the knowledge we've learned in class to improve o
Final form of the project
We are expecting to finish a study report and a PowerPoint presentation for our research assignment. Th
References

E. R. S. BANGER, "Multiprocessor Operating System: Examples, Types, Advantages, & Feature!," 6 Feb
A. Sugandhi, "What is Deadlock in Operating System (OS)?," 23 January 2023. [Online]. Available: https:
P. Jain, "Deadlock and method for handling deadlock," 5 October 2018. [Online]. Available:
https://www.includehelp.com/operating-systems/deadlock-and-method-for-handlingdeadlock.aspx. [Acce