Experiment No. 6

Aim: Write a C program to stimulate the concept of Dining-philosophers problem.

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Experiment No. 6

Aim: Write a C program to stimulate the concept of Dining-philosophers problem.

Learning Objectives: To learn and understand the concept of Dining-philosophers problem.

Theory:

The Dining-~~principles~~ philosophers problem states that k philosophers seated around a circular table with one chop-stick between each pair of philosophers. There is one chopstick between each philosopher.
Semaphore solution to Dining philosopher.
Each philosopher is represented by the following pseudo code;

```
process P[i]
  while true do
  { THINK;
    PICKUP (CHOPSTICK[i], CHOPSTICK[i+1 mod5]);
    EAT;
    PUTDOWN (CHOPSTICK[i], CHOPSTICK [i+1 mod 5])
  }
```

There are three states of philosopher: THINKING, HUNGRY and EATING. Here there are two semaphore Mutex and a semaphore array for the philosophers. Mutex is used such that no two philosophers may access the pickup or putdow at the same time.

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Conclusion :-

Thus, Dining - philosophers problem is studied successfully.

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Conclusion:

Thus, Dining-philosophers problem is studied successfully.

Teacher's Signature

Experiment No. 7

Aim :- Write a c program to stimulate contigious memory allocation strategy using
a) Best fit b) Worst fit and c) First fit algorithm

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Experiment No. 7

Aim: Write a C program to stimulate contigious memory allocatio strategy memory allocation strategy using ~~Storage~~ strategy memory allocation strategy using
a) Best fit b) Worst fit and c) First fit algorithm

Learning objectives: To learn and understand the concept of contigious memory allocation Strategy.

● Theory:
Contiguous Memory Allocation: Contiguous memory allocation is basically a method in which a single contiguous section/ part of memory is allocated to a process as file needing it.

a) Best-Fit: This method keeps the free/busy list in order by size-smallest to largest. In this method, the operating system first searches the whole of the memory according to the size of given job and allocates it to the closet-fitting free partition in the memory, making it able to ~~the~~ ~~are~~ use memory efficiently.

b) Worst-Fit: In this allocation technique, the process ~~transverse~~ traverses the whole memory and always search for the largest hole/partition, and then the process is placed in that hole/partition. It is slow process because it has to traverse the entire memory to search the largest hole.

c) First-Fit Memory: This method keeps the free/busy list of jobs organized by memory location, low-ordered to high-ordered memory. In this method, first job

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Conclusion :-

Thus, we have studied contiguous memory allocation strategy using best fit, worst fit and first-fit allocation successfully.

claims the first available memory with space more than or equal to its size.

Conclusion:

Thus, we have studied contiguous memory allocation strategy using best fit, worst fit and first-fit allocation successfully.

Experiment No. 8

Aim: Write a C program to implement page replacement algorithms (VLAB)

1) FIRST IN FIRST OUT (FIFO)
2) LEAST RECENTLY USED (LRU)

Conclusion: Thus, program to implement concept of page replacement algorithm is studied successfully.

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Experiment No. 8.

Aim: Write a C program to implement page replacement algorithms (VLAB)

1) FIRST IN FIRST OUT (FIFO)
2) LEAST RECENTLY USED (LRU)

learning objective: To learn and understand the concept of page replacement algorithm.
objective

Theory:
Page objective replacement is basic to demand paging. It completes the separation between logical memory and physical memory with this mechanism, an enormous virtual memory can be provided for programmers on a smaller physical memory. A FIFO replacement algorithm associates with each page the time when that page was brought into memory. when a page must be replaced, the oldest page is chosen. least ~~frequently used~~ Recently used (LRU) page-replacement algorithm requires that the page with the smallest count to be replaced the reason for this selection is that an actively used page should have a large reference count.

clusion:
Thus, program to implement concept of page replacement algorithm is studied successfully.

Teacher's Signature

Experiment No. 9

Aim: Write a C program to stimulate the following file allociation strategies.
a) Sequential b) Indexed.

Conclusion:
Thus, we have studied and complete c program to stimulate the file allocation strategies

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Experiment No. 9

Aim:- Write a C program to stimulate the following file allocation strategies.
a) Sequential b) Indexed.

Learning objectives:
To learn and understand file allocation strategies.

Theory:-
File Allocation Methods: The allocation methods define how the files are stored in the disk blocks. There are three main disk space or file allocation methods.
1) Sequential Allocation 2) Indexed Allocation
3) Linked Allocation.
The main idea behind these methods is to provide:
• Efficient disk space utilization.
• Fast access to the file blocks.

usion:-
Thus, we have studied and complete c program to Stimulate the file allocation Strategies.

Experiment No. 10

Aim: Write a c program to create a scenerio where when a new process enters the system, it must declare the maximum number of instances of each resource type that it may need. This number may not exceed the total number of resources in the system. When a user requests a set of resources, the system must determine whether the allocation of these resources will leave the system in a safe state. If it will, the resources are allocated; otherwise, the process must wait until some other process releases enough resources (Banker's Algorithm)

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Experiment No. 10.

Aim : Write a c program to create a scenerio where when a new process enters the system, it must declare the maximum number of instances of each resource type that it may need. This number may not exceed the total number of resources in the system. When a user requests a set of resources, the system must determine whether the allocation of these resources will ~~leave~~ leave the system in a safe state. If it will ~~be~~, the resources are allocated otherwise, the process must wait until some other process releases enough resources (Banker's Algorithm).

earning Objectives : To learn and understand the concept of Blanker's Algorithm.

eory :- Banker's Algorithm is a resource allocation and deadlock avoidance algorithm that tests for safety by simulating the allocation for predetermined maximum possible amounts of all resources. Following data structure are used to imple-ment the Banker's Algorithm. Let 'n' be the number of processes in the system and 'm' be the number of resources types.

Available :
. It is a 1-d array of size 'm' indicating the number of available resources of each type.

Max :
. It is a 2-d array of size 'n*m' that defines the maximum demand of each process in a system.

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Conclusion:

Thus a program to implent the Banker's Algorithm is studied successfully.

Allocation :

- It is a 2-d array of size 'n*m' that defines the number of resources of each type currently allocated to each process.

Need :

- It is a 2-d array of size 'n*m' that indicates the remaining resource need of each process.
- Need[i,j]=k means process Pi currently need 'k' instances of resource type ~~Rj~~ Ri for its execution.

Allocation specifies the resources currently allocated to process Pi and Need specifies the additional resources that process Pi may still request to complete its task.

lusion :-

Thus a program to implent the Banker's Algorithm is studied successfully.