

EXPERIMENT-21

Develop a C program to implement the worst fit algorithm of memory management.

AIM:-

To develop a C program to implement the Worst Fit algorithm for memory management, which allocates the largest available memory block to a process.

ALGORITHM:-

1. Initialize Memory Blocks:
2. Input the total memory blocks and their sizes.
3. Input Process Requirements:
4. Take the number of processes and their respective memory requirements.
5. Allocate Memory Using Worst Fit:
6. For each process:
7. Search for the largest memory block that can accommodate the process.
8. Allocate the block if found and reduce the block size accordingly.
9. Output Results:
10. Display the allocation of processes to memory blocks.
11. If a process cannot be allocated, indicate that.
12. Use `pthread_mutex_destroy()` to clean up the mutex.

CODE:-

```
#include <stdio.h>
```

```
void worstFit(int blockSize[], int m, int processSize[], int n) {
```

```
    int allocation[n];
```

```
    for (int i = 0; i < n; i++)
```

```

allocation[i] = -1;

for (int i = 0; i < n; i++) {

    int worstIdx = -1;

    for (int j = 0; j < m; j++) {

        if (blockSize[j] >= processSize[i]) {

            if (worstIdx == -1 || blockSize[j] > blockSize[worstIdx]) {

                worstIdx = j;

            }

        }

    }

    if (worstIdx != -1) {

        allocation[i] = worstIdx;

        blockSize[worstIdx] -= processSize[i];

    }

}

```

```

printf("Process No.\tProcess Size\tBlock No.\n");

```

```

for (int i = 0; i < n; i++) {

    printf("%d\t%d\t", i + 1, processSize[i]);

    if (allocation[i] != -1)

        printf("%d\n", allocation[i] + 1);

    else

        printf("Not Allocated\n");
}

```

```

    }
}

int main() {

    int blockSize[] = {100, 500, 200, 300, 600};

    int processSize[] = {212, 417, 112, 426};

    int m = sizeof(blockSize) / sizeof(blockSize[0]);

    int n = sizeof(processSize) / sizeof(processSize[0]);

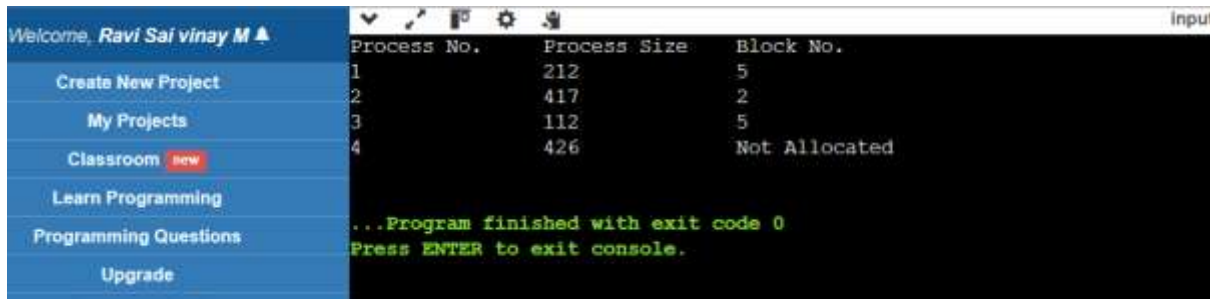

    worstFit(blockSize, m, processSize, n);

    return 0;

}

```

OUTPUT:-



Process No.	Process Size	Block No.
1	212	5
2	417	2
3	112	5
4	426	Not Allocated

...Program finished with exit code 0
Press ENTER to exit console.

RESULT:-

The program successfully implemented the Worst Fit algorithm for memory management, allocating the largest available memory block to each process where possible. Processes that couldn't fit were marked as "Not Allocated."