

MALNAD COLLEGE OF ENGINEERING

(An Autonomous Institution under Visvesvaraya Technological University, Belagavi)
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OPERATING SYSTEM(21CS502)

Activity - 02

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Write a C program for implementation memory allocation methods for fixed partition using best fit.

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

// Structure to represent each memory block
struct MemoryBlock {
    int blockSize;
    int allocated;
};

// Function to allocate memory using Best Fit algorithm
void bestFit(int blockSize[], int m, int processSize[], int n) {
    // Allocate memory blocks to processes
    int allocation[n];

    // Initialize all allocations as -1
    for (int i = 0; i < n; i++)
        allocation[i] = -1;

    // Iterate through each process and allocate memory
    for (int i = 0; i < n; i++) {
        // Find the best fit memory block for current process
        int bestIdx = -1;
        for (int j = 0; j < m; j++) {
            if (blockSize[j] >= processSize[i]) {
                if (bestIdx == -1)
```

```
    bestIdx = j;
else if (blockSize[j] < blockSize[bestIdx])
    bestIdx = j;
}
}

// Allocate memory block to current process
if (bestIdx != -1) {
    allocation[i] = bestIdx;
    blockSize[bestIdx] -= processSize[i];
}
}

// Display allocation results
printf("\nProcess 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", allocation[i] + 1);
    else
        printf("Not Allocated");
    printf("\n");
}

// Main function
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]);

bestFit(blockSize, m, processSize, n);

return 0;
}

```

Output:

The screenshot shows the Programiz C Online Compiler interface. The code editor on the left contains a C program named main.c. The output window on the right displays the results of the best-fit algorithm.

```

main.c
43     if (allocation[i] != -1)
44         printf("%d", allocation[i] + 1);
45     else
46         printf("Not Allocated");
47         printf("\n");
48     }
49 }

// Main function
52+ int main() {
53     int blockSize[] = {100, 500, 200, 300, 600};
54     int processSize[] = {212, 417, 112, 426};
55     int m = sizeof(blockSize) / sizeof(blockSize[0]);
56     int n = sizeof(processSize) / sizeof(processSize[0]);
57
58     bestFit(blockSize, m, processSize, n);
59
60     return 0;
61 }
62

```

Process No.	Process Size	Block no.
1	212	4
2	417	2
3	112	3
4	426	5

