B.BHANUTEJA REDDY-192325016

22.Construct a C program to implement the best fit algorithm of memory management.

AIM:

To construct a C program to implement the Best Fit algorithm for memory management.

ALGORITHM:

1. Input the number of memory blocks and their sizes.
2. Input the number of processes and their sizes.
3. For each process, find the smallest memory block that can accommodate the process (best fit).
4. Allocate the process to the selected block and reduce the block size.
5. If no suitable block is found, mark the process as unallocated.
6. Display the allocation details.

PROCEDURE:

1. Input the number of memory blocks and their sizes.
2. Input the number of processes and their sizes.
3. Loop through each process to find the smallest block that can fit the process.
4. Allocate the process to the block and adjust the block's size.
5. Print the allocation results.

CODE:

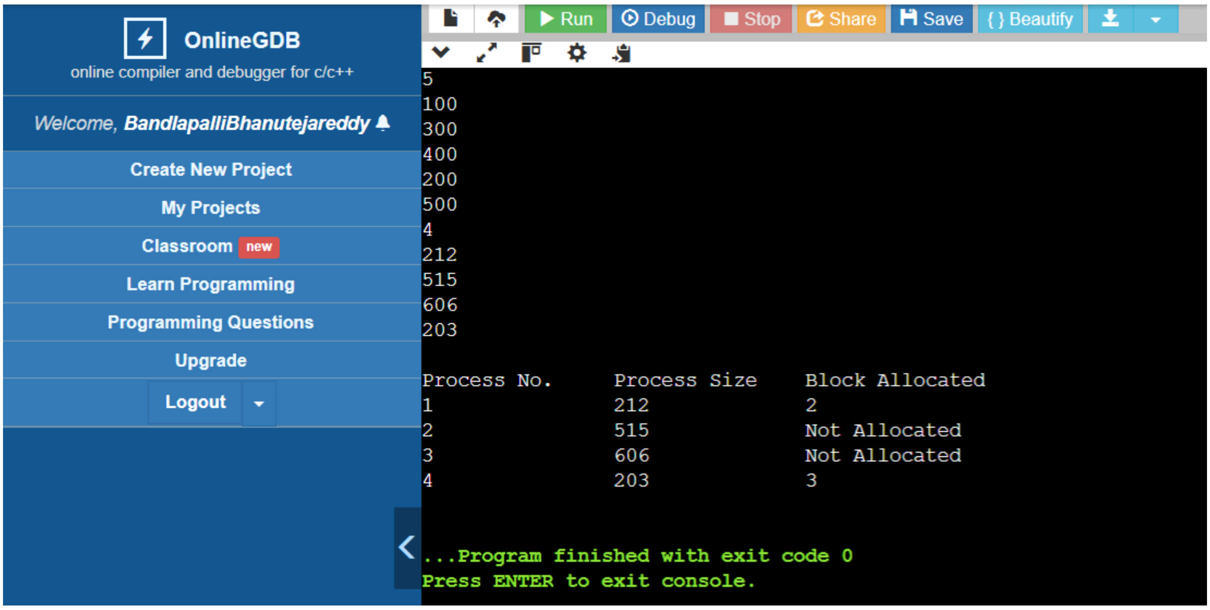
```
#include <stdio.h>


int main() {
  int nb, np;
  scanf("%d", &nb);
```

```
int blockSize[nb];
for (int i = 0; i < nb; i++) {
    scanf("%d", &blockSize[i]);
}
scanf("%d", &np);
int processSize[np], allocation[np];
for (int i = 0; i < np; i++) {
    scanf("%d", &processSize[i]);
    allocation[i] = -1;
}
for (int i = 0; i < np; i++) {
    int bestIdx = -1;
    for (int j = 0; j < nb; j++) {
        if (blockSize[j] >= processSize[i]) {
            if (bestIdx == -1 || blockSize[j] < blockSize[bestIdx]) {
                bestIdx = j;
            }
        }
    }
    if (bestIdx != -1) {
        allocation[i] = bestIdx;
        blockSize[bestIdx] -= processSize[i];
    }
}
printf("\nProcess No.\tProcess Size\tBlock Allocated\n");
for (int i = 0; i < np; i++) {
    printf("%d\t\t%d\t\t", i + 1, processSize[i]);
    if (allocation[i] != -1)
```

```
            printf("%d\n", allocation[i] + 1);
        else
            printf("Not Allocated\n");
    }
    return 0;
}
```

OUTPUT:



```
5
100
300
400
200
500
4
212
515
606
203

Process No.     Process Size    Block Allocated
1               212             2
2               515             Not Allocated
3               606             Not Allocated
4               203             3


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