Question 10

Write a program to implement the Best fit memory management algorithm. Program should take input total no. of memory block ,their sizes , process name and process size. Output of program should give the details about memory allocated to process with fragmentation detail.

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Code :

```
#include<bits/stdc++.h>
using namespace std;

void Best_Fit(int block_size[], int total_blocks, int process_size[], int
total_process) {
   int allocation[total_process];
   memset(allocation, -1, sizeof(allocation));
   for (int i = 0; i < total_process; i++) {
       int bestIdx = -1;
      for (int j = 0; j < total_blocks; j++) {
         if (block_size[j] >= process_size[i]) {
           if (bestIdx == -1)
               bestIdx = j;
            else if (block_size[bestIdx] > block_size[j])
               bestIdx = j;
         }
      }
      if (bestIdx != -1) {
         allocation[i] = bestIdx;
         block_size[bestIdx] -= process_size[i];
      }
   }
   cout << "\nProcess No.\tProcess Size\tBlock no.\n";
   for (int i = 0; i < total_process; i++) {
      cout << " " << i+1 << "\t\t" << process_size[i] << "\t\t";
      if (allocation[i] != -1)
         cout << allocation[i] + 1;
      else
         cout << "Not Allocated";
         cout << endl;
   }
}
int main() {
   int total_blocks,total_process;
    cout << "Enter Number of Memory Blocks\n";
    cin >> total_blocks;
    cout << "Enter Number of Process\n";
    cin >> total_process;

   int block_size[total_blocks], process_size[total_process];
   cout << "Enter values of Memory Blocks\n";
```

```
    for (int i = 0; i < total_blocks; i++) {
        cin >> block_size[i];
    }
    cout << "Enter values of Process\n";
    for (int i = 0; i < total_process; i++) {
        cin >> process_size[i];
    }
    Best_Fit(block_size, total_blocks, process_size, total_process);
    return 0 ;
}
```

Output :

```
Enter Number of Memory Blocks
5
Enter Number of Process
5
Enter values of Memory Blocks
4
5
6
7
8
Enter values of Process
4
5
3
7
8

Process No.     Process Size    Block no.
 1              4               1
 2              5               2
 3              3               3
 4              7               4
 5              8               5
```