

Ex. No.: 10a)

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BEST FIT

Aim:

To implement Best Fit memory allocation technique using Python.

Program Code:

```
#include <stdio.h>

#define MAX 25

int main() {
    int blockSize[MAX], processSize[MAX];
    int allocation[MAX], blockCount, processCount;

    printf("Enter the number of memory\n\n");
    scanf("%d", &blockCount);

    printf("Enter the size of each memory\n\n");
    for (int i = 0; i < blockCount; i++) {
        printf("Block %d: ", i + 1);
        scanf("%d", &blockSize[i]);
    }

    printf("Enter the number of processes: ");
    scanf("%d", &processCount);

    printf("Enter the size of each\n\n");
    for (int i = 0; i < processCount; i++) {
        printf("Process %d: ", i + 1);
        scanf("%d", &processSize[i]);
        allocation[i] = -1; // initialize as not allocated
    }

    for (int i = 0; i < processCount; i++) {
        int bestIdx = -1;
        for (int j = 0; j < blockCount; 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
No.\n"); for (int i = 0; i < processCount; i++)
    {
        printf("%d\t\t%d\t\t", i + 1,
        processSize[i]); if (allocation[i] != -1)
            printf("%d\n", allocation[i] + 1); // block
numbers start from 1 else
            printf("Not Allocated\n");
    }

    return 0;
}

```

OUTPUT:

```

Enter the number of memory blocks: 5
Enter the size of each memory block:
Block 1: 100
Block 2: 2000
Block 3: 300
Block 4: 400
Block 5: 500
Enter the number of processes: 4
Enter the size of each process:
Process 1: 212
Process 2: 417
Process 3: 112
Process 4: 426

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

```

Ex. No.: 10b)

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FIRST FIT

Aim:

To write a C program for implementation memory allocation methods for fixed partition using first fit.

Program Code :

```
#include <stdio.h>
#define MAX
25 int main() {
    int frag[MAX], b[MAX], f[MAX], bf[MAX],
    ff[MAX]; int i, j, nb, nf, temp;

    printf("Enter the number of blocks:
"); scanf("%d", &nb);
    printf("Enter the number of files: ");
    scanf("%d", &nf);

    printf("Enter the size of each
block:\n"); for (i = 0; i < nb; i++) {
        printf("Block %d: ", i + 1);
        scanf("%d",
        &b[i]); bf[i] = 0; //
        block free
    }

    printf("Enter the size of each
file:\n"); for (i = 0; i < nf; i++) {
        printf("File %d: ", i + 1);
        scanf("%d", &f[i]);
    }

    for (i = 0; i < nf;
    i++) { for (j = 0; j
    < nb; j++) {
        if (bf[j] == 0 && b[j] >= f[i]) { // first free
        block large enough ff[i] = j;
            frag[i] = b[j] - f[i];
            bf[j] = 1; // mark block
            as allocated break;
        }
    }
    if (j == nb) {

        ff[i] = -1; // no suitable block found
```

```

        frag[i] = -1;
    }
}

printf("\nFile No.\tFile Size\tBlock No.\tBlock
Size\tFragment\n"); for (i = 0; i < nf; i++) {
    if (ff[i] != -1) {
        printf("%d\t%d\t%d\t%d\t%d\n", i + 1, f[i], ff[i] + 1, b[ff[i]],
frag[i]);
    } else {
        printf("%d\t%d\t\t\t\tNot Allocated\n", i + 1, f[i]);
    }
}

return 0;
}

```

OUTPUT:

```

Enter the number of blocks: 5
Enter the number of files: 4
Enter the size of each block:
Block 1: 100
Block 2: 500
Block 3: 200
Block 4: 300
Block 5: 600
Enter the size of each file:
File 1: 212
File 2: 417
File 3: 112
File 4: 426

```

File No.	File Size	Block No.	Block Size	Fragment
1	212	2	500	288
2	417	5	600	183
3	112	3	200	88
4	426	Not Allocated		