Course Name: Operating systems

LAB: 09

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Roll: DT-22046

Program:

```
#include <stdio.h>



int main() {

    int p[10], np, b[10], nb, ch;

    int c[10], d[10], alloc[10], flag[10], i, j;



    printf("\nEnter the number of processes: "); scanf("%d", &np);



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



    printf("Enter the size of each process:\n"); for (i = 0; i

    < np; i++) {

        printf("Process %d: ", i);

        scanf("%d", &p[i]);

    }



    printf("Enter the size of each block:\n"); for (j = 0;

    j < nb; j++) {
```

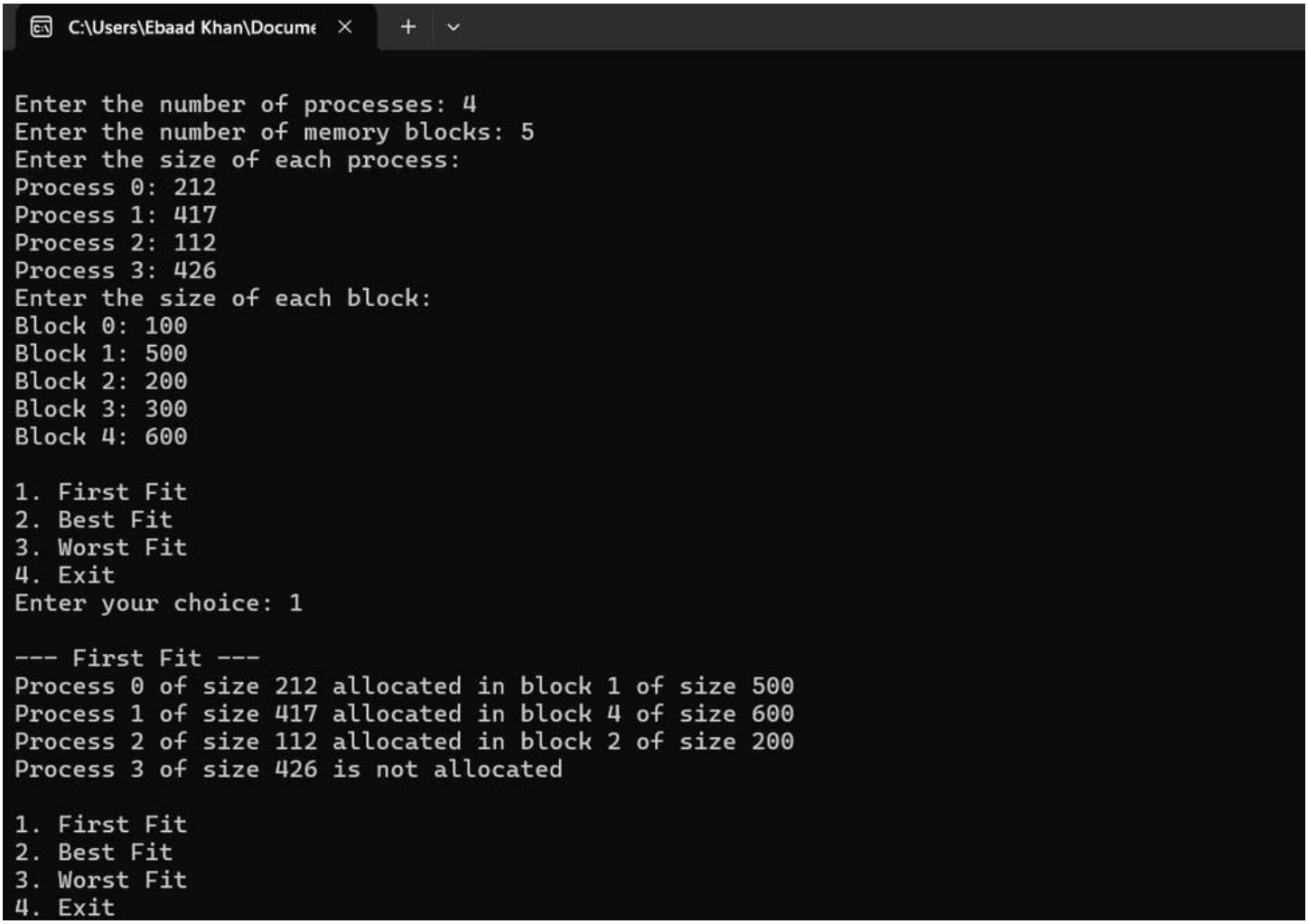
```
        printf("Block   %d:   ",   j);

        scanf("%d",   &b[j]);   c[j]   =

        b[j]; // for best fit d[j] = b[j];

        // for worst fit

    }



    if (np <= nb) { do {

            printf("\n1. First Fit\n2. Best Fit\n3. Worst Fit\n4. Exit\nEnter your choice: ");
scanf("%d", &ch);


for (i = 0; i < np; i++) flag[i] = 1; // reset flags for (j = 0; j <
            nb; j++) {

                c[j] = b[j]; // reset for best fit
d[j] = b[j]; // reset for worst fit

            }



            switch (ch) { case 1:

                    printf("\n--- First Fit ---\n"); for (i =

                    0; i < np; i++) {

                        for (j = 0; j < nb; j++) {
if (p[i] <= b[j]) { alloc[i] = j; printf("Process %d of size %d allocated in block %d of size %d\n", i, p[i], j, b[j]); flag[i]

                            = 0; b[j] = 0;

                                break;

                            } } if

                        (flag[i]) {

                            printf("Process %d of size %d is not allocated\n", i, p[i]);

                        }

                    }
```

```
break;


case 2:
printf("\n--- Best Fit ---\n");

                // sort blocks in ascending order for (i = 0;

                i < nb - 1; i++) {

                   for (j = i + 1; j < nb; j++) {
if (c[i] > c[j]) {

                       int temp = c[i]; c[i] =

                       c[j];

                        c[j] = temp;

                     }

                  }

               }
for (i = 0; i < np; i++) { for (j = 0; j < nb;
               j++) {

                    if (p[i] <= c[j]) {
alloc[i] = j;

                       printf("Process %d of size %d allocated in block %d of size %d\n", i, p[i], j, c[j]); flag[i] = 0;

                       c[j] = 0; break;

                    } }

                  if (flag[i]) {
printf("Process %d of size %d is not allocated\n", i, p[i]);

                  }

               }
break;


case 3:
printf("\n--- Worst Fit ---\n");
```

```
                // sort blocks in descending order for (i
                = 0; i < nb - 1; i++) { for (j = i + 1; j < nb;
                j++) { if (d[i] < d[j]) {
                        int temp = d[i];
                        d[i] = d[j]; d[j] =
                        temp;
                    }
                  }
                }
for (i = 0; i < np; i++) { for (j = 0; j < nb; j++) { if (p[i] <= d[j]) { alloc[i] = j; printf("Process %d of size %d allocated
                in block %d of size %d\n", i, p[i], j, d[j]);
                        flag[i]  =  0;
                        d[j]   =   0;
                        break;
                    }
                  }
if (flag[i]) {
printf("Process %d of size %d is not allocated\n", i, p[i]);
                  }
                }
break;


            case 4:
                printf("Exiting...\n"); break;

default:
printf("Invalid choice. Try again.\n");
          }
```

```
    } while (ch != 4);

  } else {

                printf("Number of processes should be less than or equal to number of blocks.\n");

  }



  return 0;

}
```

OUTPUT:



```
Enter your choice: 2

--- Best Fit ---
Process 0 of size 212 allocated in block 4 of size 300
Process 1 of size 417 is not allocated
Process 2 of size 112 is not allocated
Process 3 of size 426 is not allocated

1. First Fit
2. Best Fit
3. Worst Fit
4. Exit
Enter your choice: 3

--- Worst Fit ---
Process 0 of size 212 allocated in block 0 of size 300
Process 1 of size 417 is not allocated
Process 2 of size 112 is not allocated
Process 3 of size 426 is not allocated

1. First Fit
2. Best Fit
3. Worst Fit
4. Exit
Enter your choice:
```