Write a C program to simulate page replacement algorithms.

a) FIFO

```
#include <stdio.h>

int main() {
   int pages[100], n, frames[10], f, i, j, k = 0, flag, faults = 0;

   printf("Enter number of pages: ");
   scanf("%d", &n);

   printf("Enter the page reference string:\n");
   for(i = 0; i < n; i++)
      scanf("%d", &pages[i]);

   printf("Enter number of frames: ");
   scanf("%d", &f);

   for(i = 0; i < f; i++)
      frames[i] = -1;

   printf("\nPage\tFrames\t\tPage Fault\n");

   for(i = 0; i < n; i++) {
      flag = 0;

      for(j = 0; j < f; j++) {
         if(frames[j] == pages[i]) {
            flag = 1;
            break;
         }
      }

      if(flag == 0) {
         frames[k] = pages[i];
         k = (k + 1) % f;
         faults++;

         printf("%d\t", pages[i]);
         for(j = 0; j < f; j++) {
            if(frames[j] != -1)
               printf("%d ", frames[j]);
            else
               printf("- ");
         }
         printf("\tYes\n");
```

```
    } else {
      printf("%d\t", pages[i]);
      for(j = 0; j < f; j++) {
        if(frames[j] != -1)
          printf("%d ", frames[j]);
        else
          printf("- ");
      }
      printf("\tNo\n");
    }
  }

  printf("\nTotal Page Faults = %d\n", faults);
  return 0;
}
```

Output

```
Enter number of pages: 2
Enter the page reference string:
2
1
Enter number of frames:
3

Page    Frames      Page Fault
2   2 - -   Yes
1   2 1 -   Yes

Total Page Faults = 2


=== Code Execution Successful ===
```