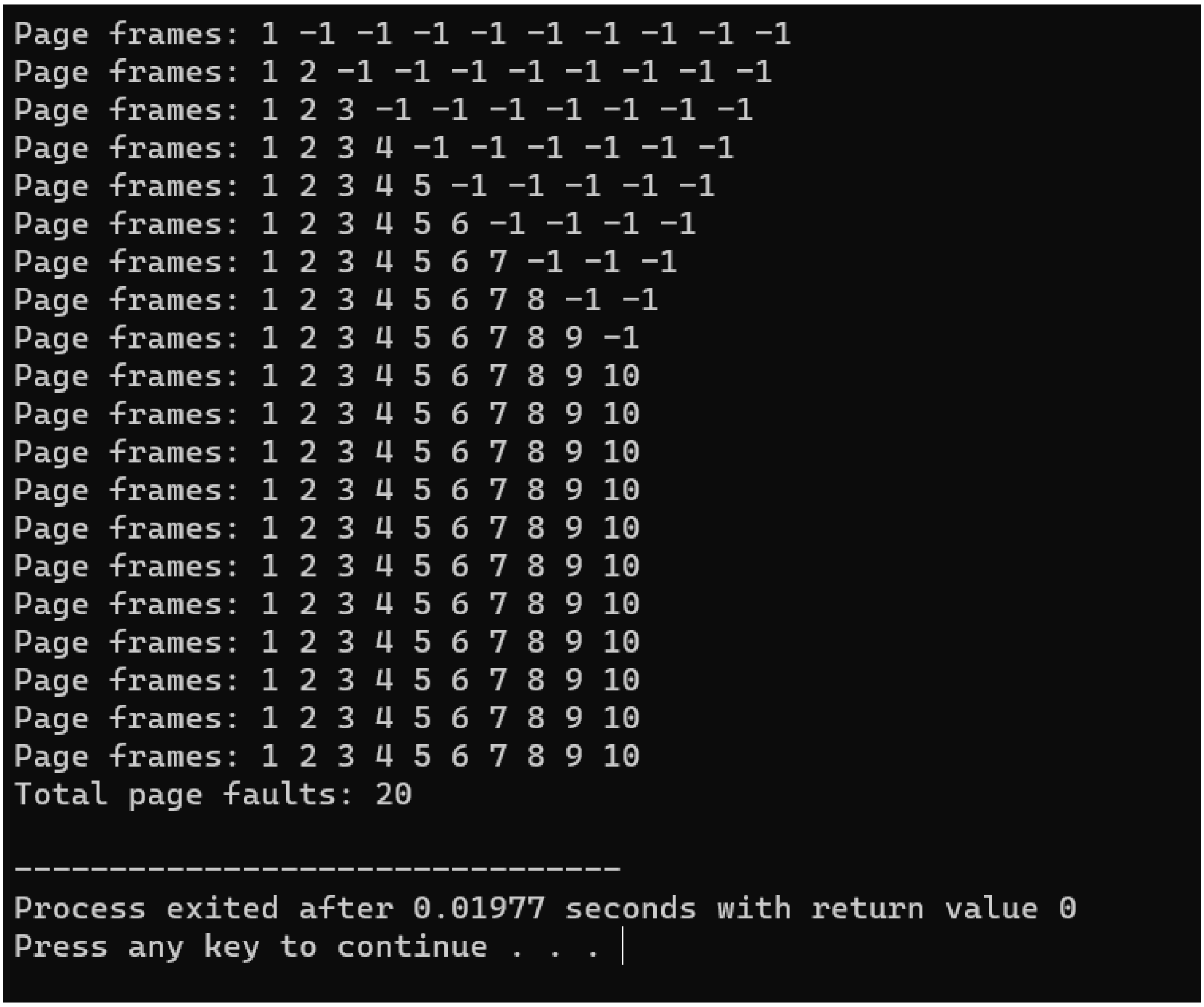
EXP 33

```
#include <stdio.h>
#define MAX_PAGE_FRAMES 10
#define MAX_PAGE_REFERENCES 20
int page_frames[MAX_PAGE_FRAMES];
int page_reference_string[MAX_PAGE_REFERENCES] = {1, 2, 3, 4, 5, 6,  7, 8, 9, 10, 11, 12, 13, 14};
int page_faults = 0;
int find_page_fault(int page_reference) {
   int i;
   for (i = 0; i < MAX_PAGE_FRAMES; i++) {
      if (page_frames[i] == page_reference) {
         return 0;
      }
   }
   return 1;
}
int find_optimal(int current_index) {
   int i, j, max_distance = -1, optimal_index = -1;
   for (i = 0; i < MAX_PAGE_FRAMES; i++) {
      int distance = -1;
      for (j = current_index; j < MAX_PAGE_REFERENCES; j++) {
         if (page_frames[i] == page_reference_string[j]) {
            distance = j - current_index;
            break;
         }
      }
      if (distance > max_distance) {
         max_distance = distance;
         optimal_index = i;
      }
   }
   return optimal_index;
}
int main() {
   int i, j, current_page, next_page, optimal;
   for (i = 0; i < MAX_PAGE_FRAMES; i++) {
      page_frames[i] = -1;
   }
   for (i = 0; i < MAX_PAGE_REFERENCES; i++) {
      current_page = page_reference_string[i];
      if (find_page_fault(current_page)) {
         page_faults++;
         if (page_faults <= MAX_PAGE_FRAMES) {
            for (j = 0; j < MAX_PAGE_FRAMES; j++) {
               if (page_frames[j] == -1) {
                  page_frames[j] = current_page;
                  break;
```

```
                    }
                }
            } else {
                optimal = find_optimal(i);
                page_frames[optimal] = current_page;
            }
        }
        printf("Page frames: ");
        for (j = 0; j < MAX_PAGE_FRAMES; j++) {
            printf("%d ", page_frames[j]);
        }
        printf("\n");
    }
    printf("Total page faults: %d\n", page_faults);
    return 0;
}
```



```
Page frames: 1 -1 -1 -1 -1 -1 -1 -1 -1 -1
Page frames: 1 2 -1 -1 -1 -1 -1 -1 -1 -1
Page frames: 1 2 3 -1 -1 -1 -1 -1 -1 -1
Page frames: 1 2 3 4 -1 -1 -1 -1 -1 -1
Page frames: 1 2 3 4 5 -1 -1 -1 -1 -1
Page frames: 1 2 3 4 5 6 -1 -1 -1 -1
Page frames: 1 2 3 4 5 6 7 -1 -1 -1
Page frames: 1 2 3 4 5 6 7 8 -1 -1
Page frames: 1 2 3 4 5 6 7 8 9 -1
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Page frames: 1 2 3 4 5 6 7 8 9 10
Total page faults: 20

--------------------------------
Process exited after 0.01977 seconds with return value 0
Press any key to continue . . .
```