

Name: Renita Kurian	SRN: PES1UG20CS331	Section: N
	Date: 12/07/21	Week Number: 10

1	<p>Implement Binary Search using call back when there is more than one constraint to check for.</p> <p>a) Search for a number if the number is even</p> <p>b) Search for a number if the number is less than 22.</p>
	<p>Program:</p> <pre> C P1.c > main() 1 //Binary search using callback 2 #include <stdio.h> 3 4 int is_less_than_22(int key) // callback condition for less than 22 5 { 6 int result = 0; 7 if (key < 22) result = 1; 8 return result; 9 } 10 11 int is_even(int key) // callback condition for even 12 { 13 int result = 0; 14 if ((key % 2) == 0) result = 1; 15 return result; 16 } 17 18 int my_search(int* a, int l, int h, int key, int (*p)(int))// binary search 19 { 20 int pos = -1; 21 if (p(key) == 0) return pos; 22 while (l <= h && pos == -1) 23 { 24 int mid = (l + h) / 2; 25 if (a[mid] == key) 26 pos = mid; 27 else if (key < a[mid]) 28 h = mid - 1; 29 else 30 l = mid + 1; 31 } 32 return pos; 33 } 34 </pre>

```

35  int main()
36  {
37      int a[] = {10,14,16,24,26,34,38,39,41,45,47,54,58,60,64,68,71,75,79,81,88,90,93,95,100}; //array
38      int n = sizeof(a) / sizeof(int); // size of array
39      int key; int result;
40      printf("Enter the search element : ");
41      scanf("%d", &key);
42      result = my_search(a, 0, n - 1, key, is_even);
43      if (result == -1)
44          printf("Not found\n");
45      else
46          printf("Search element is even and available at position %d\n", result);
47      result = my_search(a, 0, n - 1, key, is_less_than_22);
48      if (result == -1)
49          printf("Not found\n");
50      else
51          printf("Search element is less than 22 & available at position %d\n", result);
52      return 0;
53  }
54

```

Output Screenshot:

C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>gcc P1.c

C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>a
Enter the search element : 14
Search element is even and available at position 1
Search element is less than 22 & available at position 1

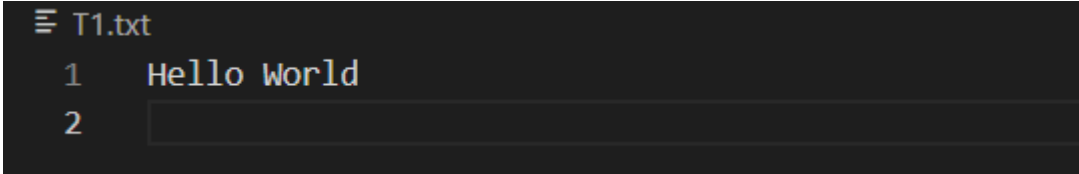
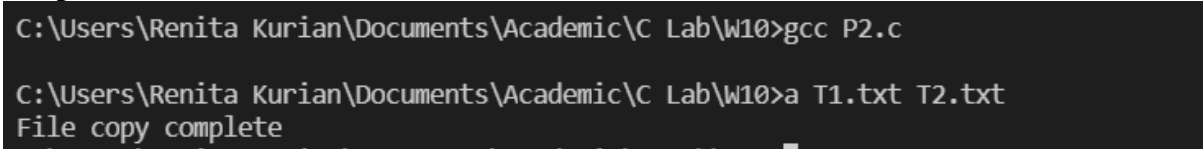
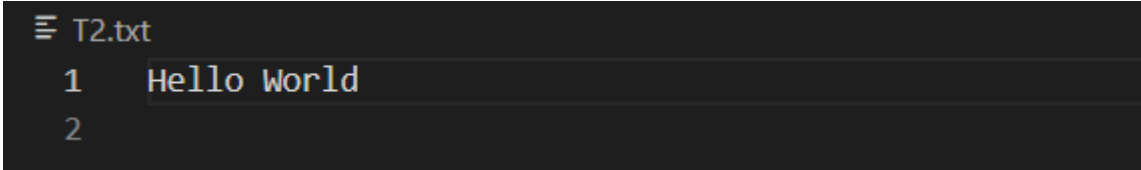
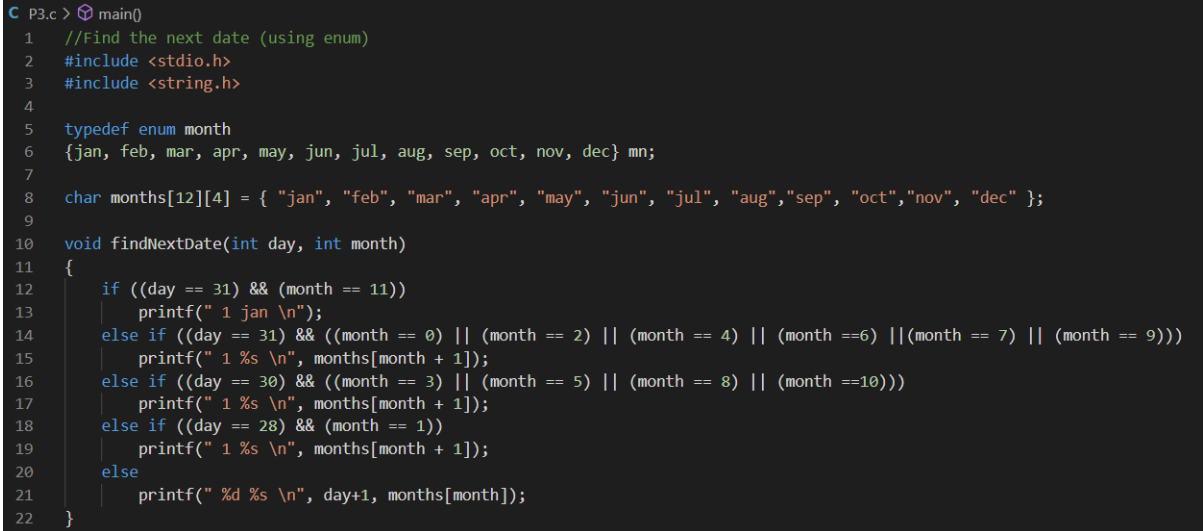
C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>a
Enter the search element : 64
Search element is even and available at position 14
Not found

C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>a
Enter the search element : 21
Not found
Not found

- 2 Write a program to copy the contents of one file to another using command line arguments

Program:

```
C P2.c > main(int, char * [])
1 //Copy one text file into another using command line arguments
2 #include<stdio.h>
3 #include<stdlib.h>
4
5 int main(int argc, char* argv[])
6 {
7     FILE *f1, *f2;
8     int ch;
9     if (argc != 3)
10    {
11        printf("Invalid number of arguments.");
12        return 0;
13    }
14    f1 = fopen(argv[1], "r");
15    if (f1 == NULL)
16    {
17        printf("Source file cannot be found");
18        return 0;
19    }
20    f2 = fopen(argv[2], "w");
21    if (f2 == NULL)
22    {
23        printf("target file cannot be opened");
24        fclose(f1);
25        return 0;
26    }
27    while (1)
28    {
29        ch = fgetc(f1);
30        if (feof(f1)) break;
31        fputc(ch, f2);
32    }
33    printf("File copy complete");
34    fclose(f1);
35    fclose(f2);
36    return 0;
37 }
```

	<p>T1.txt</p> 
	<p>Output Screenshot:</p>  <p>T2.txt</p> 
3	<p>Write a program using enumerated types which when given today's date will print out tomorrow's date.</p>
	<p>Program:</p> 

```
24 int main()
25 {
26     int day; int i;
27     char month[4];
28     printf("Input a date (number <space> 3 letter lower case month e.g. 31 jan) : ");
29     scanf(" %d %s", &day, month);
30     printf("The next day is : ");
31     for (i = jan; i <= dec; i++) if (strcmp(month, months[i]) == 0)
32         findNextDate(day, i);
33     return 0;
34 }
```

Output Screenshot:

```
C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>gcc P3.c
C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>a
Input a date (number <space> 3 letter lower case month e.g. 31 jan) : 10 jun
The next day is : 11 jun
C:\Users\Renita Kurian\Documents\Academic\C Lab\W10>
```