

## Lab 11

```
1  #include <stdio.h>
2  #include <math.h>
3
4  main()
5  {
6      int direction = 0, distance = 0, x = 0, y = 0, press = 0, tmp = 0;
7      float displacement = 0.00, xpow = 0.00, ypow = 0.00;
8      char finish = 'y';
9
10     while (finish == 'y' && press <= 5)
11     {
12         printf("Please select direction 8(N) 9(NE) 6(E) 3(SE) 2(S) 1(SW) 4(W) 7(NW) : ");
13         scanf("%d", &direction);
14         switch (direction)
15         {
16             case 8:
17                 y++;
18                 press++;
19                 break;
20             case 9:
21                 y++;
22                 x++;
23                 press++;
24                 break;
25             case 6:
26                 x++;
27                 press++;
28                 break;
```

```
29     case 3:
30         x++;
31         y--;
32         press++;
33         break;
34     case 2:
35         y--;
36         press++;
37         break;
38     case 1:
39         y--;
40         x--;
41         press++;
42         break;
43     case 4:
44         x--;
45         press++;
46         break;
47     case 7:
48         y++;
49         x--;
50         press++;
51         break;
52     default:
53         break;
54 }
55
56 printf("\n\nRobot location x = %d y = %d \n\n", x, y);
57 if (direction == 8)
58 {
```

```
59     printf("Bot Direction is \"North\\");
60 }
61 else if (direction == 6)
62 {
63     printf("Bot Direction is \"East\\");
64 }
65 else if (direction == 2)
66 {
67     printf("Bot Direction is \"South\\");
68 }
69 else if (direction == 4)
70 {
71     printf("Bot Direction is \"West\\");
72 }
73 else if (direction == 9)
74 {
75     printf("Bot Direction is \"North East\\");
76 }
77 else if (direction == 3)
78 {
79     printf("Bot Direction is \"South East\\");
80 }
81 else if (direction == 1)
82 {
83     printf("Bot Direction is \"South West\\");
84 }
85 else if (direction == 7)
86 {
87     printf("Bot Direction is \"North West\\");
88 }
```

```
89     printf("\n\n");
90
91     while (press == 5)
92     {
93         printf("\n\nContinue Program ? (y/N) : ");
94         scanf(" %c", &finish);
95         printf("\n\n");
96         if (finish == 'y' || finish == 'N')
97         {
98             tmp = tmp + press;
99             press = 0;
100        }
101        else
102        {
103            printf("Enter only \" y \" or \"N\"");
104        }
105    }
106    if (finish == 'N')
107    {
108        xpow = x;
109        x = 0;
110        ypow = y;
111        y = 0;
112        displacement = sqrt(pow(xpow - x, 2) + pow(ypow - y, 2));
113        printf("\nTotal Distance = %d\n\n", tmp);
114        printf("\nDisplacement Distance = %.2f\n\n", displacement);
115        printf("\nEnd Program\n");
116    }
117 }
118 }
```