

Electrical and Computer Engineering Department  
University of Massachusetts Dartmouth

ECE160: Foundations of Computer Engineering I (Spring 2023)

Homework #2 Solution  
(45 points)

1. Write a program that prints a triangle as follows:

```
A
AB
ABC
ABCD
ABCDE
ABCD
ABC
AB
A
```

**An example solution: (10 points)**

```
#include <stdio.h>

void main(void)
{
    printf("A\n");
    printf("AB\n");
    printf("ABC\n");
    printf("ABCD\n");
    printf("ABCDE\n");
    printf("ABCD\n");
    printf("ABC\n");
    printf("AB\n");
    printf("A\n");
}
```

2. Write a program that prints the sunset shape as follows:

```
      .
     . .
    . . .
   . @ @ @ .
  @ @ @ @ @
 ..... @ @ @ @ @ .....

```

**Example solutions (15 points)**

**#1:**

```

#include <stdio.h>

void main(void)
{
    printf("\n\n\n");
    printf("\t\t.\n");
    printf("\t.\t.\t.\n");
    printf("\t .\t. .\n");
    printf("\t . @@@ .\n");
    printf("\t @@@@\n");
    printf("\t.....@@@@.....\n");
    printf("\n\n\n");
}

```

## **#2:**

```

#include <stdio.h>

void main(void)
{
    printf("\n\n\n");
    printf("\t\t.\n \t.\t.\t.\n \t .\t. .\n\t . @@@ .\n\t
@@@@\n\t.....@@@@.....\n");
    printf("\n\n\n");
}

```

- Write a program where you ask a user to enter 6 floating-point numbers between 0 and 30 from the keyboard, and you print them out one per line in the order the numbers are entered, then print the numbers in the reverse order, again one per line.

For example, the user entered 2.2 3.3 4.4 5.5 6.6 7.7, your output should be:

```

2.2
3.3
4.4
5.5
6.6
7.7

7.7
6.6
5.5
4.4
3.3
2.2

```

## **An example solution: (20 points)**

```

#include <stdio.h>

void main(void)
{
    float f1 = 0;
    float f2 = 0;
    float f3 = 0;
    float f4 = 0;
    float f5 = 0;
    float f6 = 0;

    printf("Please enter six floating-point numbers:\n");
    scanf_s("%f%f%f%f%f%f", &f1, &f2, &f3, &f4, &f5, &f6);

    printf("\nYou have input:\n");
    /*This line is optional*/

    printf("%3.1f\n%3.1f\n%3.1f\n%3.1f\n%3.1f\n%3.1f\n", f1, f2, f3, f4, f5, f6);

    printf("\nThe numbers in the reverse order are:\n");
    /*This line is optional*/

    printf("%3.1f\n%3.1f\n%3.1f\n%3.1f\n%3.1f\n%3.1f\n", f6, f5, f4, f3, f2, f1);

    /*3.1 is used as an example, other values of field width and precision width may
    be used, like 4.2*/
}

```