Take Home Exam 1

Due 11:59 pm, July 24

Instructions:

1. Please write your name and student ID carefully at the top of your script.
2. Once you are finished, take snapshots of your answer script.
   Convert them into pdfs and merge all the pdfs together to generate a single pdf file. You might use CAMSCANNER or any other application you feel comfortable to do so.
   If you submit multiple pdfs/ images only the first image will be considered as your script. Rest of the images/scripts will not be approved as your answer script.
3. This is an open book exam. You can use your textbook, slides, codes that are provided to you while answering the questions.
   However, do not copy blindly from internet. If you find the answer of any of the questions on internet, please skip that and try to solve that on your own.
   You will be marked -100% for copying anything blindly from internet.
4. In no circumstances you are allowed to communicate with any of the students personally or through any social site (e.g. Facebook/ WhatsApp).
   In such cases the scripts of both the provider and the copier will be declared invalid and will be marked -100%. (It does not matter whether you copy a small portion or 3-4 questions)
5. There will be penalty for late submission.

Above all, the idea of this take home exam is to help you get a better grasp of the topics that have been covered in lecture. Take this opportunity to improve your understandings of the topics.

Q1. (19 points)

What will be the output of the following codes? Justify your reason.

a. (1 point)

```
#include <stdio.h>
int main(){
	printf("Hello World!\n");
}
```

b. (2 Point)

```
#include <stdio.h>
int main(){
	printf("\"This is Sparta!\"\n");
	printf("C\nOV\ti\\D19\n");
}
```

c. (4 Point)

```
#include <stdio.h>
int main(){
	int a=10, b=-3, c=5;
	printf("%d %d %d\n", a, b, c);
	a = a+b+c;
	printf("%d %d %d\n", a, b, c);
	b = a-(b+c);
	printf("%d %d %d\n", a, b, c);
	c = a-(b+c);
	printf("%d %d %d\n", a, b, c);
	a = a-(b+c);
	printf("%d %d %d\n", a, b, c);
}
```

d. (4 Point)

```
#include <stdio.h>
int main(){
	int a = 2, b = 3;
	int c = a / b;
	printf("%d\n", c);
	float d = (float)(a/b);
	printf("%f\n", d);
	float e = (float)a/b;
	printf("%f\n", e);
	e = (float)13/5;
	printf("%d\n", e);
}
```

e. (8 Point)

Find the output of the following code for a = 20 and a = 45.

```
#include <stdio.h>
int main(){
	int a;
	scanf(“%d”, &a);
	if (a > 40){
		printf("You really \n");
		if (a >=50){
			printf("need to \n");
			if(a <= 55){
				printf("Prepare\n");
			}
			else{
				printf("improve\n");
			}
		}
		else{
			printf("to\n");
			if(a >= 45){
				printf("the\n");
			}
			else{
				printf("your\n");
			}
		}
	}
	else{
		printf("You\n");
		if (a >=30){
			printf("knowledge\n");
			if(a <= 35){
				printf("wrath\n");
			}
			else{
				printf("feel\n");
			}
		}
		else{
			printf("shall\n");
			if(a >= 20){
				printf("not pass!!\n");
			}
			else{
				printf("on conditions\n");
			}
		}
```

```
        }
}
```

Q2. (18 points)

The following codes do not compile. What you need to do to make the codes compile and Why?

a. (2 point)

```
#include <stdio.h>
int main(){
        a = 20;
        printf("%d", a);
}
```

b. (2 point)

```
#include <stdio.h>
int main(){
        int a = 20;
        printf("%d", a);
        int a = 40;
        printf("%d", a);
}
```

c. (2 point)

```
#include <stdio.h>
int main(){
        int 2a1;
        printf("%d", 2a1);
}
```

d. (2 point)

```
#include <stdio.h>
int main(){
        int a = 20;
        printf("%d", a)
}
```

e. (2 point)

```
#include <stdio.h>
int main(){
        int a = 20;
        scanf("%d", a);
}
```

f. (2 point)

```
#include <stdio.h>
int main(){
       int a = 20;
       scanf("%d ", a);
}
```

g. (2 point)

```
#include <stdio.h>
int main(){
       int a = 20;
       scanf("%d", a);
}
```

h. (2 point)

```
#include <stdio.h>
int main(){
    int a = 20;
    if(a = 20){
        printf("a is less than 20\n");
    }
}
```

i. (2 point)

```
#include <stdio.h>
int main(){
    int a = 10;
    if(a>0){
        printf("a is positive\n");
    }
    else{
    printf("a is negative\n");
}
```

Q3. (10 points)

Write a C program that takes 6 int or float values (x1, y1, x2, y2, x3, y3) from the user which represent the vertices (x1,y1), (x2,y2), and (x3,y3) of a triangle and checks if the triangle is a right triangle or not.

Examples

Input
2 3 5 3 2 7
Output
Right-triangle

Input

2 3 5 3 4 7
Output
Not a Right-triangle