ASSIGNMENT # 2 FOR PIAIC IOT BATCH (3.30-6.30)

1. **Explain the error in the following code:**

```
fn main(){

        let x = String::from("PIAIC IoT");
        let y = x;

        println!("{}",x);
}
```

Note: Just explain the error in your words in Google Form field :)

2. **Complete the following code:**

```
fn main(){
        let s = String::from("PAKISTAN");

        println!("{}",s);

}
```

Make a function that takes **s** variable as parameter/argument but doesn't take ownership of s variable and concatenates **"ZINDABAD"** in variable s to makes it **"PAKISTAN ZINDABAD".** Print variable s after change.

3. Take 3 numbers as input from user and print the average of it.

Average Formula: (number1 + number2 + number3) / 3

4. Take a string input from user and store it in a variable then pass that variable in a function which returns you the length of the string. **Print the length.**

5. Take number of lines as input from user and print the following pattern.

For example if user inputs 5 then pattern will be like this:

*****
******
****
****
****

6. Make a custom data type named **Student** using struct with following fields:

   - **Name**
   - **Email**
   - **Phone Number**
   - **Gender**

   Assign all four fields the appropriate data type in struct definition.

   Create 2 instances named **student1** and **student2** of Student struct and **print email of student1** and **print all fields of student2**.

7. Change the value of width field in **rect1** instance from 50 to 150 and print width of rect1 after change.

   <u>Note</u>: You are allowed to make changes and addition in following code wherever needed.

   struct Rectangle {

   width: u32,
   height: u32

```
}


fn main(){

let rect1 = Rectangle{
        width: 50,
        height: 100
};

}
```

8. Define a function that takes Rectangle struct as parameter **(Rectangle struct is defined above in Question 7).** Return the **sum of width and height** from that function and print it.

   Hint: Read Book Chapter 5 :)

   https://doc.rust-lang.org/nightly/book/

9. Create a custom datatype using struct named **Triangle** with following fields:

- **length1**
- **length2**
- **length3**

Where length1, length2 and length3 are the lengths of the three sides of a triangle.

Define a method with Triangle struct that returns the sum of all three sides.

Define another method with Triangle struct that returns the largest size (side with the greatest value).

Now, Create an instance of Triangle struct with these lengths (length1 = 25, length2 = 80, length3 = 60) and print the sum of all three sides and greatest side using defined methods.

10. Create a custom data type using **struct** named **Person** with following fields:

- **Name**
- **Age**
- **Country**

Step1: Take **input** of Name, Age and Country from User.

Step2: Create an instance of Person struct with the user input of (Name, Age and Country).

Step3: Create an array and store each field (name, age and country) of instance on each index and then print that array.

GOOD LUCK!! :)