Presidential Initiative for Artificial Intelligence and Computing (PIAIC)

Assignment # 2

Q1. Project Calculator

Write a calculator program. A minimal calculator will support the following functions:

- numbers with decimals (not just integers)
- addition (1 + 2 is 3)
- subtraction (12 - 4 is 8)
- multiplication (33 * 2 is 66)
- division (3 / 8 is 0.375)
- exponents (2 ^ 3 is 8)
- error messages when you do something wrong

Your calculator should keep on running until explicitly told to quit. I suggest typing a zero as the first operand to cause it to quit, i.e.

Program Console Sample:

```
>2 + 3
5
>4 * 9
36
>0 + 2
Bye
```

Hint:

Well, if you read in everything as a String, then you can convert to other things.

What to avoid:

Any program, which presents me with a screen like the following, will <u>not</u> receive a very good score.

Program Console Sample:

Enter the function you wish to perform.
1) addition

2)   subtraction
3)   multiplication
4)   division 5) quit
Your choice:

Also, the same fate applies to any program that ever presents me with the following message:

 Would you like to calculate again? (y/n)

Finally, you may use the built-in function in order to compute powers, but those that write their own will receive a much higher score.

Q2. Complete the file closures_properties.rs in drive.

Q3. We learned to use closures as arguments to other functions. Can you use a closure as a value of field of a struct? Read **Listing 13-10: The caching logic of Cacher** to learn about it and then create your own example. Be creative!

Q4. Mr. Asim wants to adopt children from *Yateem khana.* He wants to adopt those children only who have the primary education and are at least bilingual. Mr. Allah Bakhsh is the head of *Yateem Khana*. He is helping Mr Asim to make his visit successful.
He is showing him 2 children at a time by passing those 2 children(struct) in a function named adopt(). If both of the children have both of the above mentioned qualities(traits), then Mr. Asim happily brings them to their new home sweet home. How can you help Mr. Allah Bakhsh / Mr.Asim?

Q5. What are the 4 qualities of closure?
Hint: Sir Naufil highlighted each of them with different highlighters in documentation