FINAL WORKING QUESTIONS

Write a Python code to implement a polymorphic payroll program.

Design a class for Employees. This class will be superclass. The Employees class will have two private attributes (firstName and lastName). The class must have appropriate __init__, accessor and mutator methods.

Employee Class

- In print_employee method, print the data attributes according to the output which is given below. Use accessor methods in print_employee method.

Design a class for CommissionEmployee. This class will be subclass of Employee. The CommissionEmployee class will have two private attributes (commission_rate and gross_sales). The class must have appropriate __init__, accessor and mutator methods.

CommissionEmployee Class

- In print_employee method, call super class's print_employee method. Then, print data attributes of the CommissionEmployee Class. Use accessor methods in print_employee method.
- In earnings method, calculate and print the earnings (earnings= commission_rate* gross_sales). Use accessor methods in earnings method to get commission_rate and gross_sales.

Design a class for BasePlusCommissionEmployee. This class will be subclass of CommissionEmployee. The BasePlusCommissionEmployee class will have one private attribute (base_salary). The class must have appropriate __init__, accessor and mutator methods.

BasePlusCommissionEmployee Class

- In print_employee method, call CommissionEmployee class's print_employee method. Then, print data attribute of the BasePlusCommissionEmployee Class. Use accessor methods in print_employee method.
- In earnings method, calculate and print the earnings (earnings= base_salary+(commission_rate* gross_sales)). Use accessor method in earnings method to get base_salary. Also, use CommissionEmployee class's earning method.

Test your program with following driver program.

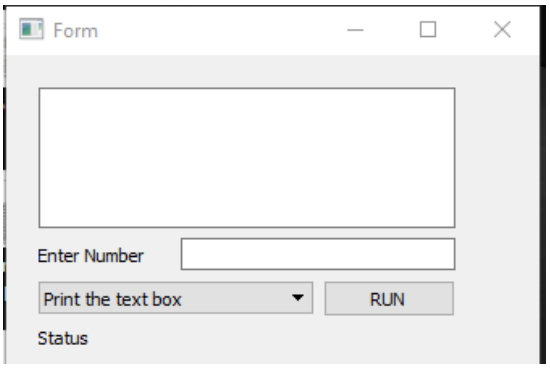
```
import employees

def main():

    my_employee= employees.Employee("John","Smith")
    my_employee.print_employee()

    my_comm_employee=employees.CommissionEmployee("Sue","Jones",10000,0.6)
    my_comm_employee.print_employee()
    my_comm_employee.earnings()

    my_base_comm_employee=employees.BasePlusCommissionEmployee("Bob","Lewis",5000,0.4,300)
    my_base_comm_employee.print_employee()
    my_base_comm_employee.earnings()

main()
```

The output of the program must be as follows:

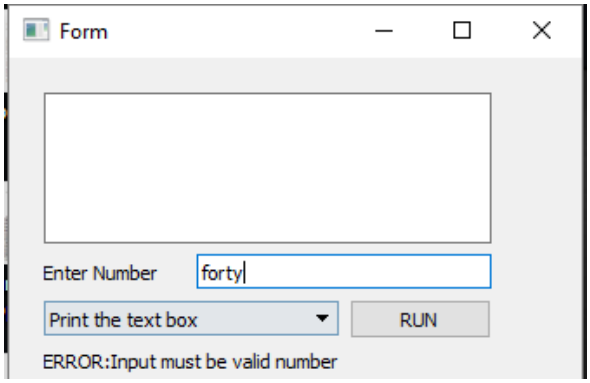
```
First Name: John
Last Name: Smith

First Name: Sue
Last Name: Jones
Comission Rate: 10000
Gross Sales: 0.6
Earnings: 6000.0

First Name: Bob
Last Name: Lewis
Comission Rate: 5000
Gross Sales: 0.4
Base Salary: 300
Earnings: 2300.0
```

Write a Python program to calculate prime numbers.

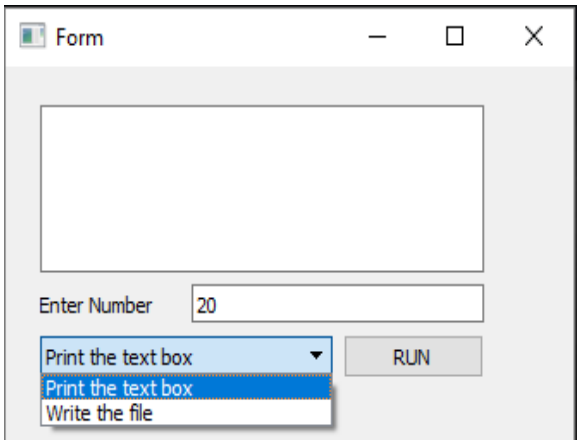
i) Design a Qt application to obtain following window. In the application, there are 2 labels (Enter Number and Status), 1 Text Edit, 1 Line Edit, 1 Combo Box and 1 Push Button.

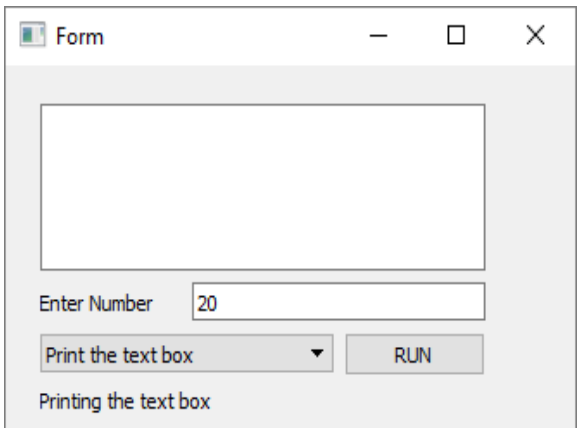


ii) First, enter a number in Line Edit. If the user enter an invalid input (i.e entering the number with string instead of a number), you have to print an error message in Status label (**Hint: Use exception handling concepts**).

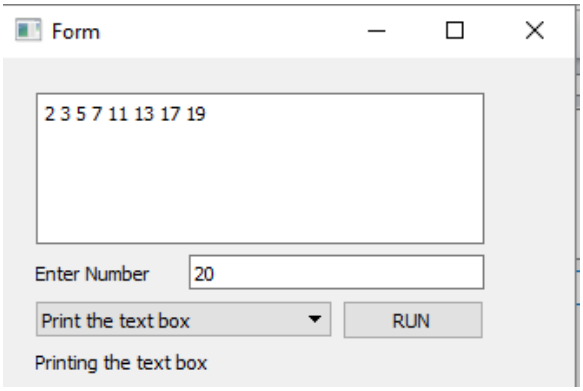


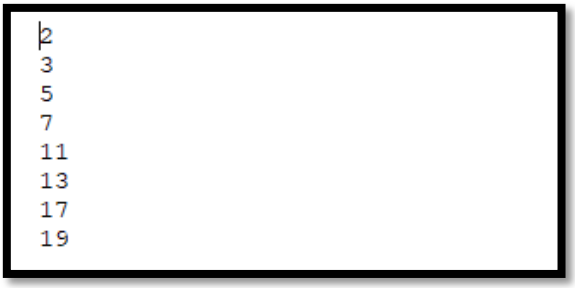
iii) Then, select an action by using Combo Box. You can choose one of the "Print the text box" or "Write the file". If you choose "Print the text box" option, you have to display the prime numbers in Text Box. Otherwise, you have to write the prime numbers in a file. Also, you have to print your choice in Status label.





iv) When you press RUN button, you have to call **calculate_primes** function. In the function, you have to define an empty list and assign the prime numbers into the list. Then return the list. In addition, you have to implement **print_text_box** and **print_file** functions. The **print_text_box** function receives the list and prints the list into text box. Similarly, the **print_file** function receives the list and writes the list into a file. You have to call one of these functions according to your choice.


Form
2 3 5 7 11 13 17 19
Enter Number
20
Print the text box
RUN
Printing the text box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