Mini Project – 1 (Python)

Problem statement:

- Build a number Guessing Game in which the user selects a range.
- Assume the user selected a range from X and Y where both X and Y are integers.
- So a random number in that range is selected by the system where the user needs to guess the number in minimum number of guesses.

Algorithm:

- The welcome message will be popped up on the user's console.
- Getting the range from the user
    - Getting Lower bound of the range.
    - Getting Higher bound of the range.
- By using random the system will select a random number from the given range and the random number will be stored inside a variable.
- Initializing the guess counter to zero.
- The system will allow the user to guess the random number.
- For every entry the guess counter will be incremented.
- The number of guesses will be limited to 10 chances.
- Messages will be popped up when ever the given entry by the user is wrong.
    - If the entry is not in between the given range.
    - If the entry is too low, inform the user that the entry is lower than the number.
    - If the entry is too high, inform the user that the entry is higher than the number.
    - If the entry matches the number, inform the user that the number they have guessed is right.
    - If the guess counter equals to 10 then, inform the user that they were out of chances.
- The game ends with a congratulatory message along with the number of guesses even whether the user guesses the number or even if they have used all the chances.

Pseudocode:

```
START
    PRINT“  Welcome to the number guessing game ”
    PRINT “ Enter the lower bound of the range “
    READ  lower_bound
    PRINT “ Enter the higher bound of the range “
    READ  higher_bound
    IF lower_bound  >  higher_bound THEN
        PRINT “higher bound should be higher than the lower bound “
    ELIF lower_bound = higher_bound THEN
        PRINT “higher bound should not be equal to lower bound”
    ELSE
        PRINT “The given range is suitable for the game”
    WHILE lower_bound < higher_bound
    Secret_number=Random.Randint(lower_bound,higher_bound)
    PRINT “Secret number have been selected enter your guess”
    READ number
    INCREMENT guess_counter
    IF number = secret_number THEN
        PRINT “you have guessed the number correct “
    ELIF number > secret_number THEN
        PRINT “Your guess is too higher from the secret number”
    ELIF number < secret_number THEN
        PRINT ”Your guess is too low from the secret number”
    ELSE
        PRINT “ Given entry is not in between the given range”
    END IF
    IF guess_counter = 5 THEN
        PRINT “Better luck next time you are out of your chances”
    PRINT “Congratulations you have successfully completed the game by using
        {guess_counter} chances”
END
```

CODE:

```
import random

print("Welcome to the Number Guessing Game!")
while True:
    try:
        x = int(input("Enter the lower bound of the range (X): "))
        y = int(input("Enter the upper bound of the range (Y): "))
        if x >= y:
            print("Invalid entry, The upper bound must be greater than the lower bound.")
            continue
        break
    except ValueError:
        print("Please enter valid integers for the range.")

secret_number = random.randint(x, y)
chances = 10
print(f"You have {chances} chances to guess the number.")
print("I have selected a random number from the range given above")
for guess_count in range(chances):
    while True:
        try:
            guess = int(input("Enter your guess: "))
            break
        except ValueError:
            print("Invalid input. Please enter a number.")
    if guess == secret_number:
        print("Congratulations! You guessed the number in", guess_count + 1, "tries.")
        break
    elif guess < secret_number:
        print("Too low. Try again!")
    else:
        print("Too high. Try again!")
else:
    print("You ran out of chances. The secret number was", secret_number)

print("Thankyou for participating in the number guessing game!!!")
```

```python
import random

print("Welcome to the Number Guessing Game!")
while True:
    try:
        x = int(input("Enter the lower bound of the range (X): "))
        y = int(input("Enter the upper bound of the range (Y): "))
        if x >= y:
            print("Invalid entry, The upper bound must be greater than the lower bound.")
            continue
        break
    except ValueError:
        print("Please enter valid integers for the range.")

secret_number = random.randint(x, y)
chances = 10
print(f"You have {chances} chances to guess the number.")
print("I have selected a random number from the range given above")
for guess_count in range(chances):
    while True:
        try:
            guess = int(input("Enter your guess: "))
            break
        except ValueError:
            print("Invalid input. Please enter a number.")
    if guess == secret_number:
        print("Congratulations! You guessed the number in", guess_count + 1, "tries.")
        break
    elif guess < secret_number:
        print("Too low. Try again!")
    else:
        print("Too high. Try again!")
else:
    print("You ran out of chances. The secret number was", secret_number)

print("Thankyou for participating in the number guessing game!!!")
```

OUTPUT:

1)

```
C:\Users\buris\PycharmProjects\pythonProject1\venv\Scripts\python.ex
Welcome to the Number Guessing Game!
Enter the lower bound of the range (X): 0
Enter the upper bound of the range (Y): 100
You have 10 chances to guess the number.
I have selected a random number from the range given above
Enter your guess: 80
Too high. Try again!
Enter your guess: 75
Too high. Try again!
Enter your guess: 70
Too high. Try again!
Enter your guess: 65
Too high. Try again!
Enter your guess: 60
Too high. Try again!
Enter your guess: 65
Too high. Try again!
Enter your guess: 50
Too high. Try again!
Enter your guess: 55
Too high. Try again!
Enter your guess: 45
Too high. Try again!
Enter your guess: 40
Too high. Try again!
You ran out of chances. The secret number was 16
Thankyou for participating in the number guessing game!!!

Process finished with exit code 0
```

2)

```
Welcome to the Number Guessing Game!
Enter the lower bound of the range (X): 10
Enter the upper bound of the range (Y): 50
You have 10 chances to guess the number.
I have selected a random number from the range given above
Enter your guess: 25
Too low. Try again!
Enter your guess: 40
Too low. Try again!
Enter your guess: 45
Too low. Try again!
Enter your guess: 55
Too high. Try again!
Enter your guess: 50
Congratulations! You guessed the number in 5 tries.
Thankyou for participating in the number guessing game!!!

Process finished with exit code 0
```