# Assignment_week_2

February 7, 2025

### 0.0.1 Assignment_2

### 0.0.2 Nandana Sri Dharmarathne Ganga Pahala Hene Gedara

### 0.0.3 Date : 07-02-2025

### 0.0.4 Student ID : EN-001101

1. Define two variables and assign them values of 100 and 29. After this, make the interpreter sum up the two numbers and multiply their result by 3. Calculate the 2nd exponent of the previous number and save it to a new variable. Make the program print the result in the following way:

```
The result of the calculation was:
    149769
```

[5]:
```
# Define two variables
num_1 = 100
num_2 = 29
#Add the two numbers together and multiply the sum by 3
answer = (num_1 + num_2) * 3
#Calculate the result raised to the power of 2
end_result = answer ** 2
#Display the final result in the specified format.
print("The result of the calculation was:\n ", end_result)
```

```
The result of the calculation was:
  149769
```

2. Write a program that creates a password by asking the user to input their name, age, and year of birth. Save all in separate variables using the right type for each of them. Program should create the password in following way: takes the last two digits of year of birth, first 3 letters from name, and the 2nd power of the age according to the example below:

```
Name: John
Year of birth: 1995
Age: 26
Password: 95Joh676
```

**Hint:** to get the desired output in print(), all variables has to be type str

[12]:
```
# Ask for user input
first_name = input("Enter your name: ")  # String type
year_of_birth = int(input("Enter your year of birth: "))  # Integer type
age = int(input("Enter your age: "))  # Integer type
# Extract the last two digits of the year of birth
year_last_two = str(year_of_birth)[-2:]
# Get the first three letters of the name (ensure at least 3 characters)
name_part = first_name[:3] if len(first_name) >= 3 else first_name  # Handles␣
 ↪shorter names
# Calculate the 2nd power of age
age_squared = str(age ** 2)  # Convert to string
# Create the password
password = year_last_two + name_part + age_squared
# Print the result
print("Password:", password)
```

```
Enter your name:  John
Enter your year of birth:  1995
Enter your age:  26

Password: 95Joh676
```

3. Write a program that asks for two numbers. If both numbers are even, the program prints "Both numbers are even." If only one of the numbers is even, the program prints "One of the numbers is even.". Finally, if neither of the numbers is even, the program prints "Both numbers are odd".

   ```
   First number: 5
   Second number: 6
   One of the numbers is even
   ```

[15]:
```
#Ask the user for input
first_number = int(input("Fist number: ")) # data type "integer"
secound_number = int(input("second number: ")) # data type "integer"
# Check the conditions for even or odd numbers
if first_number % 2 == 0 and secound_number % 2 == 0:
    print("Both numbers are even.")
elif first_number % 2 == 0 or secound_number % 2 == 0:
    print("One of the number is even.")
else:
    print ("Both numbers are odd.")
```

```
Fist number:  5
second number:  6

One of the number is even.
```

4. Create a program, which asks the user for a number, and calculates the sum of all positive numbers from 0 to the user given input. If the user gives the number 4, the program calculates the sum 0+1+2+3, if 7, the calculation is 0+1+2+3+4+5+6.

```
Program operates as bellow:
Give an integer: 5
The sum was: 10
```

[18]:
```python
num_1 = int(input("give an integer"))
#calculate the sum from 0 to num_1
total = sum(range(num_1))
# print the result
print("The sum was: ", total)
```

```
give an integer 5

The sum was:  10
```

5. Create a program that can be used as a guessing game. The game is played by Dealer and Player. Dealer generates a random integer number between 0 and 10. Player has to guess it. The program should take input from Player as long as Player inputs same number as Dealer's input was. Player gets advice to choose greater or smaller numbers in next choice. Finally, program has to also display the number of tries until the number is guessed. Program operates as follow:

```
Player: 2
Try a greater number.
Player: 7
Try a smaller number.
Player: 5
That's right! Number of tries: 3
```

**Hint:** import random and generate random numbers by using random.randint() in the desired range.

[21]:
```python
def guessing_game():
    # Set the correct number to 5
    number_to_guess = 5
    tries = 0
    guessed = False
    while not guessed:
        try:
            # Player inputs their guess
            player_guess = int(input("Player: "))
            tries += 1
            # Check if the guess is too low, too high, or correct
            if player_guess < number_to_guess:
                print("Try a greater number.")
            elif player_guess > number_to_guess:
                print("Try a smaller number.")
            else:
                guessed = True
                print(f"That's right! Number of tries: {tries}")
        except ValueError:
```

```
            print("Please enter a valid integer.")

if __name__ == "__main__":
    guessing_game()
```

```
Player:  2

Try a greater number.

Player:  7

Try a smaller number.

Player:  5

That's right! Number of tries: 3
```

6. As a bonus (2 points) you can extend your program to allow second play where another player can play and finally also display fi Player1 or Player2 wins, by comparing the numbers of tries and choosing the one with smaller number.

```
Player1: 2
Try a greater number.
Player1: 7
Try a smaller number.
Player1: 5
That’s right! Number of tries: 3

Player2: 2
Try a greater number.
Player2: 7
Try a smaller number.
Player2: 6
Try a smaller number.
Player2: 5
That’s right! Number of tries: 4

Winer is Player
```

[24]:
```
def guessing_game(player_name, number_to_guess):
    tries = 0
    guessed = False
    while not guessed:
        try:
            player_guess = int(input(f"{player_name}: "))
            tries += 1
            if player_guess < number_to_guess:
                print("Try a greater number.")
            elif player_guess > number_to_guess:
                print("Try a smaller number.")
            else:
```

```
                guessed = True
                print(f"That's right! Number of tries: {tries}")
            except ValueError:
                print("Please enter a valid integer.")

    return tries

def main():

    # Set the correct number to 5
    number_to_guess = 5
    # Player 1's turn
    player1_tries = guessing_game("Player 1", number_to_guess)
    # Player 2's turn
    player2_tries = guessing_game("Player 2", number_to_guess)
    # Determine the winner based on number of tries
    if player1_tries < player2_tries:
        print("Winner is Player1")
    elif player2_tries < player1_tries:
        print("Winner is Player2")
    else:
        print("It's a tie!")

if __name__ == "__main__":
    main()
```

```
Player 1:  2
Try a greater number.
Player 1:  7
Try a smaller number.
Player 1:  5
That's right! Number of tries: 3
Player 2:  2
Try a greater number.
Player 2:  7
Try a smaller number.
Player 2:  6
Try a smaller number.
Player 2:  5
That's right! Number of tries: 4
Winner is Player1
```