Exercises Week 2-2 (Functions)

EX.5-1 From input to list

Open VSC then -> File -> Open folder -> select “Python course” folder.

Create a new file “ex5-1.py”

TASK: Your task is to create an entertaining funny nickname generator using Python programming. The generator will produce humorous nicknames by combining adjectives, funny nouns, and playful titles or additions.

(1) prepare lists of adjectives, nouns, and additions (you may use chatGPT) or use following ones:

```
# list of adjectives
list1 = ["Geeky", "Nerdy", "Tech-savvy", "Cyber", "Innovative", "Digital",
"Caffeinated", "Screaming", "Techoholic", "Gigabit", "Futuristic",
         "Cloudy", "Wireless", "Pixelated", "Robotronic", "Artificial",
"Viral", "Quantum", "Epic", "Databionic"]

# list of nouns
list2 = ["Banana", "Penguin", "Noodle", "Cupcake", "Bumblebee", "Pickle",
"Flamingo", "Pancake", "Snickerdoodle", "Cucumber",
         "Wombat", "Marshmallow", "Llama", "Gummy Bear", "Muffin", "Koala",
         "Panda", "Popcorn", "Jigsaw", "Raindrop"]
# additions and titles
list3 = ["Master of Memes", "Pixel Picasso", "Code Wizard", "Digital Dynamo",
         "Tech Ninja", "Byte Buccaneer", "Debugging Diva", "Chief Emoji
Officer", "Virtual Virtuoso", "Data Jedi", "Wi-Fi Whisperer", "Chief
Troubleshooting Titan", "Byte-sized Comedian", "Pixel Puncher", "Algorithm
Alchemist", "Digital Doodle Dandy", "Error Eradicator", "Byte Blaster",
"Techie Tinkerer", "Chief of Laughter Loops"]
```

(2) create a function which would randomly choose elements from all three lists, combine them into nickname then return the result.

EXAMPLE:

```
Best nickname for you is Screaming Cupcake, Code Wizard
```

(*) Use **choice** function from **random** module to select random value from the list.

EX.5-2 Geometry formulas

Create a new file “ex5-2.py”

TASK: Create several functions which calculate (1) the circumference of a circle with given radius r, (2) the area of the circle with given radius r, (3) the volume of the sphere with radius r, (4) the area and (5) perimeter of the rectangle with sides x and y. Test them with different values of parameters.

EXAMPLE:

```
circumference(10) C = 62.83185307179586
circle_area(10) A = 314.1592653589793
sphere_area(10) A = 1256.6370614359173
sphere_volume(10) V = 4188.790204786391
rectangle_perimeter(10) P = 60
rectangle_area(10) V = 200
```

(*) Congratulations! Now you have your own module with geometry formulars. You can import them from any other Python module.

EX.5-3 Factorial

Create a new file “ex5-3.py”

TASK: Create a Python function called factorial that takes an integer n as input and calculates its factorial:

$$n! = n(n-1)(n-2)\ldots 2 \cdot 1$$

EXAMPLE: 5! = 5 · 4 · 3 · 2 · 1 = 120

```
Enter any whole number: 5
5! = 120
```

EX.5-4 Ticket price calculator

Create a new file “ex5-3.py”

TASK: Create a Python function called ***calculate_ticket_price()*** that calculates and returns the cinema ticket price based on the following rules:

Ticket costs $15 for students of any age.

Children under 5 years old get a ticket for free ($0).

Children aged 5 to 18 years old and seniors older than 65 years old get a discounted ticket for $20.

Adults aged 19 to 64 years old pay the full ticket price of $30.

Test your program for different age values to ensure it provides the correct ticket prices.

. **(*)** How many parameters will this function have?

EXAMPLE:

```
Ticket price for age 65 is 30.0
Ticket price for age 50 is 30.0
Ticket price for age 50 (student) is 15.0
Ticket price for age 5 is 0.0
Ticket price for age 15 is 20.0
```