Python

Python is a programming language.

Python

W3schools Exercises

Python Formatting

- Python uses indentation to indicate a block of code

```
Example
if 5 > 2:
  print("Five is greater than two!")
```

Python will give you an error if you skip the indentation:

```
Example
if 5 > 2:
print("Five is greater than two!")
```

Comments in Python:

```
#This text is a comment.
print("Hello, World!")
```

Docstrings are also comments

```
"""This is a
multiline docstring."""
print("Hello, World!")
```

Note use of 3 quote marks

Function Definitions: top of file

```
# This function adds two numbers
def add(x, y):
    return x + y

# This function subtracts two numbers
def subtract(x, y):
    return x - y

# This function multiplies two numbers
def multiply(x, y):
    return x * y

# This function divides two numbers
def divide(x, y):
    return x / y

print("Select operation.")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")

# Take input from the user
```

User Events & Code: user input statements

```
# Take input from the user
choice = input("Enter choice(1/2/3/4):")

num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))

if choice == '1':
    print(num1,"+",num2,"=", add(num1,num2))

elif choice == '2':
    print(num1,"-",num2,"=", subtract(num1,num2))

elif choice == '3':
    print(num1,"*",num2,"=", multiply(num1,num2))

elif choice == '4':
    print(num1,"/",num2,"=", divide(num1,num2))
else:
    print("Invalid input")
```

Results Screen Shot: user interface

Output

```
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice(1/2/3/4): 3
Enter first number: 15
Enter second number: 14
15 * 14 = 210
```

Magic 8 Ball: Interface

main.py saved

```
1  # Import the modules
2  import sys
3  import random
4
5  ans = True
6
7  while ans:
8      question = input("Ask the magic 8 ball a question:
       (press enter to quit) ")
9
```

Magic 8 Ball: Logic

- If… then, logic example

```
10    answers = random.randint(1,8)
11
12    if question == "":
13        sys.exit()
14    elif answers == 1:
15        print( "It is certain")
16    elif answers == 2:
17        print( "Outlook good")
18    elif answers == 3:
19        print( "You may rely on it")
20    elif answers == 4:
21        print( "Ask again later")
22    elif answers == 5:
23        print( "Concentrate and ask again")
24    elif answers == 6:
25        print( "Reply hazy, try again")
26    elif answers == 7:
27        print( "My reply is no")
28    elif answers == 8:
29        print( "My sources say no")
```

Python Code used in examples:

- Functions: def https://www.w3schools.com/python/python_functions.asp
- Input: input() https://www.w3schools.com/python/python_user_input.asp
- Logic: If ... Else https://www.w3schools.com/python/python_conditions.asp
- User Interface https://www.w3schools.com/python/ref_func_print.asp
- Calculating, processing and results output
  - https://www.w3schools.com/python/python_ref_functions.asp

Demo using IDLE or AppJar Graphic Objects

- Simple Calc
- Calc with Loop
- Graphic interface, AppJar Event based Calc