

Functions

Python is multi paradigm programming language. It allows writing program using different programming paradigms.

1. Procedural Oriented Programming (POP)
2. Object Oriented Programming (OOP)

In procedural oriented programming, instructions are organized by dividing into small modules.

What is function?

A function is small program within program

A function is self contained block, which contains set of instructions to perform operation.

A function is named block

Function is a building block of **procedural oriented programming (POP)**.

Why Functions?

```
for i in range(20):  
    print("PYTHON")  
    print()
```

```
for i in range(20):  
    print("PROGRAMMING")  
    print()
```

```
for i in range(20):  
    print("LANGUAGE")  
    print()
```

```
for i in range(20):  
    print("PYTHON")  
    print()
```

Python

Programming

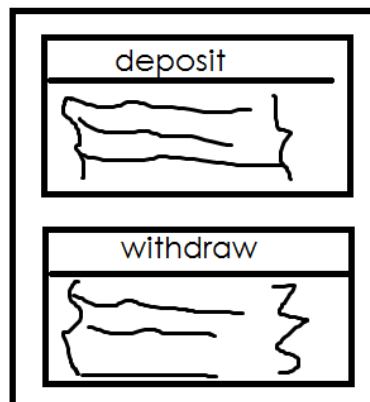
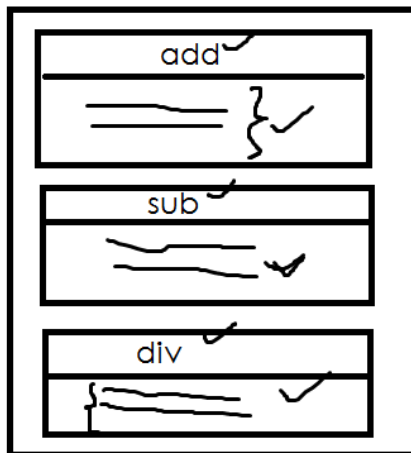
Language

drawstarts

```
for i in range(20):  
    print("PYTHON",end="")  
    print()
```

Reusability

Efficient



Modularity

Easy to understand

Advantage of functions

1. **Modularity** : dividing programming instructions according their operations into small module or pieces
2. **Reusability**: functions are reusable. Function allows write code once and use number of times
3. **Readability**: Easy to understand
4. **Efficient**: functions decreases size of the program.

Types of functions

1. Predefined functions
2. User defined functions

Predefined function or built-in functions

These functions are provided by python or third party vendors. These functions are also library functions.

example: print(), input(), oct(),hex(),bin(),ord(),chr(),len(),max(),min(),...

User defined function

The functions written by programmer are called user defined functions.

Function is developed based on 3 components

1. Input
2. Process
3. Output

Input is data or information given to function

Process is operation performed on input data

Output is result given by function.

Syntax:

```
def <function-name>([arguments]):
```

```
    """doc string"""
```

```
        statement-1
```

```
        statement-2
```

```
        statement-3
```

A function can be defined in different forms

1. Function with arguments
2. Function without arguments
3. Function with return value
4. Function without return value

Working with PyCharm

PyCharm is a python editor or IDE

PyCharm editor work on the top of python software

PyCharm is used to developing python applications and python web applications.

Pycharm is product of JetBrains

Pycharm can be download from the following website

<https://www.jetbrains.com/pycharm/download/#section=windows>

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