



Python Programming

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Яагаад Паятон хэл гэж?



- Сурч, ашиглахад хялбар
- Интернетийн орчин том хэмжээний Community -тай
- Томоохон корпорациудын дэмжлэгтэй
- Маш олон Library болон Framework-тэй
- Big data, Machine learning and Cloud computing
- First-choice Language
- Уян хатан

Web Developer



PHP



C#



JS



Java



Python



Ruby

Game Developer



Java



C++



Python



C#



Ruby



C

Data Analysis



R



Matlab



Java



Python

Desktop Developer



Java



C#



C++

Embedded System program



C



Python



C++

Mobile Apps Development



Kotlin



Dart



Objective-c



Java



Python



swift

BASIC

```
10 INPUT A
```

```
20 INPUT B
```

```
30 C=A+B
```

```
40 PRINT C
```

```
RUN
```


C

```
#include <stdio.h>

int main(int argc, char*argv[])
{
    int a,b,c;

    scanf("%d",&a);
    scanf("%d",&b);

    c = a+b;
    printf("%d\n",c);
}
```

```
$ gcc -o add add.c
$ ./add
```

Java

```
import java.io.*;
public class Addup
{
    static public void main(String args[]) {
        InputStreamReader stdin = new InputStreamReader(System.in);
        BufferedReader console = new BufferedReader(stdin);
        int i1 = 0,i2 = 0;
        String s1,s2;
        try {
            s1 = console.readLine();
            i1 = Integer.parseInt(s1);
            s2 = console.readLine();
            i2 = Integer.parseInt(s2);
        }
        catch(IOException ioex) {
            System.out.println("Input error");
            System.exit(1);
        }
        catch(NumberFormatException nfex) {
            System.out.println "\"" + nfex.getMessage() + "\" is not
numeric");
            System.exit(1);
        }
        System.out.println(i1 + " + " + i2 + " = " + (i1+i2));
        System.exit(0);
    }
}
$ javac Addup.java
$ java Addup
```


Python

```
a = input()  
b = input()  
c = a + b  
print c
```

```
$ python add.py
```

70 оноо



- Лабораторын ажил $10 * 3 = 30$ оноо
- Явцын сорил $2 * 6 = 12$ оноо
- Бие даалт $2 * 6 = 12$ оноо
- Ирц идэвхи $0.5 * 16 * 2 = 16$ оноо

Variables



- Хувьсагч тодорхойлох
- Хувьсагчийг дуудах
- Хувьсагчийн нэр давхардахгүй

```
distanceToLondonMiles = 403  
mileToKm = 1.60934  
distanceToLondonKm = distanceToLondonMiles * mileToKm  
distanceToLondonKm
```

648.56402

```
marathonDistanceMiles = 26.219  
marathonDistanceKm = marathonDistanceMiles * mileToKm  
print(marathonDistanceKm)
```

42.19528546

Types



- Хувьсагчид нь үнэндээ төрөлтэй
- Үндсэн өгөгдлийн төрлүүд:

Type	Declaration	Example	Usage
Integer	int	<code>x = 124</code>	Numbers without decimal point
Float	float	<code>x = 124.56</code>	Numbers with decimal point
String	str	<code>x = "Hello world"</code>	Used for text
Boolean	bool	<code>x = True</code> or <code>x = False</code>	Used for conditional statements
NoneType	None	<code>x = None</code>	Whenever you want an empty variable

Types



- Ялгаатай төрөлтэй хувьсагчдын хооронд арифметик үйлдэл хийж болохгүй
- `type(x)`

```
In [4]: x = 10      # This is an integer
        y = "20"    # This is a string
        x + y
```

```
-----
TypeError
```

Traceback (most recent call l

ast)

```
<ipython-input-4-f1463b8b4c2e> in <module>()
```

```
1 x = 10      # This is an integer
```

```
2 y = "20"    # This is a string
```

```
----> 3 x + y
```

```
TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

Casting types



- Ялгаатай төрлүүдийн хооронд төрөл хувиргалт хийж байж үйлдэл хийнэ.
- Төстэй функцууд: `int()`, `float()`, `str()`

```
x = 10      # This is an integer
y = "20"    # This is a string
x + int(y)
```

30

Quiz



```
x = "10"  
y = "20"  
x + y
```

Хариу нь юу вэ?

Quiz



```
x = "10"  
y = "20"  
x + y
```

Хариу нь юу вэ?

'1020'

Arithmetic operations

Математиктэй төстэй.

Үйлдлийн эрэмбэ нь

ИЖИЛХЭН

Бас хаалт () ашиглана

Symbol	Task Performed	Example	Result
+	Addition	4 + 3	7
-	Subtraction	4 - 3	1
/	Division	7 / 2	3.5
%	Mod	7 % 2	1
*	Multiplication	4 * 3	12
//	Floor division	7 // 2	3
**	Power of	7 ** 2	49

Үйлдлийн эрэмбэ



16 ** 2 / 4

64.0

Асуулт



4 + 3 ** 2

VS

(4 + 3) ** 2

Comparision operators



Boolean утга буцаана

Нөхцөл шалгахад

өргөн ашиглагддаг

Operator

Output

$x == y$

True if x and y have the same value

$x != y$

True if x and y don't have the same value

$x < y$

True if x is less than y

$x > y$

True if x is more than y

$x <= y$

True if x is less than or equal to y

$x >= y$

True if x is more than or equal to y

Comparison examples



```
x = 5      # assign 5 to the variable x
x == 5     # check if value of x is 5
```

True

Note that `==` is not the same as `=`

```
x > 7
```

Logical operators



-

Operation	Result
x or y	True if at least one is True
x and y	True only if both are True
not x	True only if x is False

a	not a	a	b	a and b	a or b
False	True	False	False	False	False
True	False	False	True	False	True
		True	False	False	True
		True	True	True	True

Truth-table definitions of bool operations

Combining both



```
x = 14  
# check if x is within the range 10..20
```

True and **True**

True

Combining both



```
x = 14
# check if x is within the range 10..20

( x > 10 ) and ( x < 20 )
```

True