GSET - Intro to Programming with Python

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Module 2 - Variables and Assignment

Module 2 - Variables and Assignment

- Types of Numbers
- Variables and Type
- Assignment and Memory
- A *Riddle*
- A Python Example

Types of Numbers

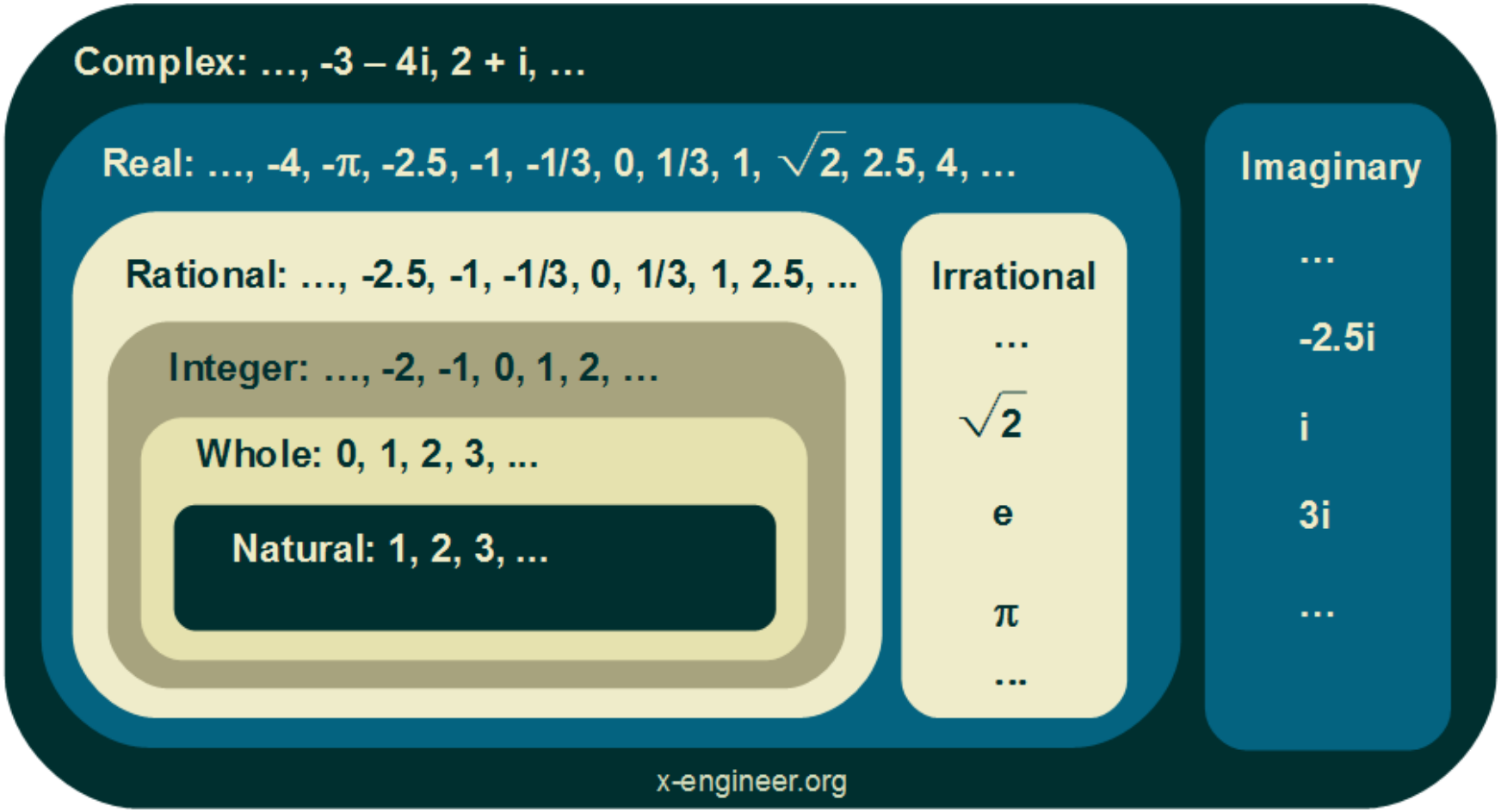

Image: x-engineer.org

Types of Numbers

Binary	Decimal	Hexadecimal
0	0	0
1	1	1
10	2	2
11	3	3
100	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	A
	11	B

Binary	Decimal	Hexadecimal
	12	C
	13	D
	14	E
	15	F
	16	
	17	
	18	
	19	
	20	
	21	
	22	
	23	

some reference

Types of Numbers

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some reference

Variables and Type

Types in Python

Text Type:	str
Numeric Types:	int, float, complex
Sequence Types:	list, tuple, range
Mapping Types:	dict
Set Types:	set, frozenset
Boolean Type:	bool
Binary Types:	bytes, bytearray, memoryview
None Type:	NoneType

w3schools

Variables and Type

```
value_A = 100;

value_B = 25.56j;

course = "ENGR1220-021-GSET"
```

A variable is a storage container.

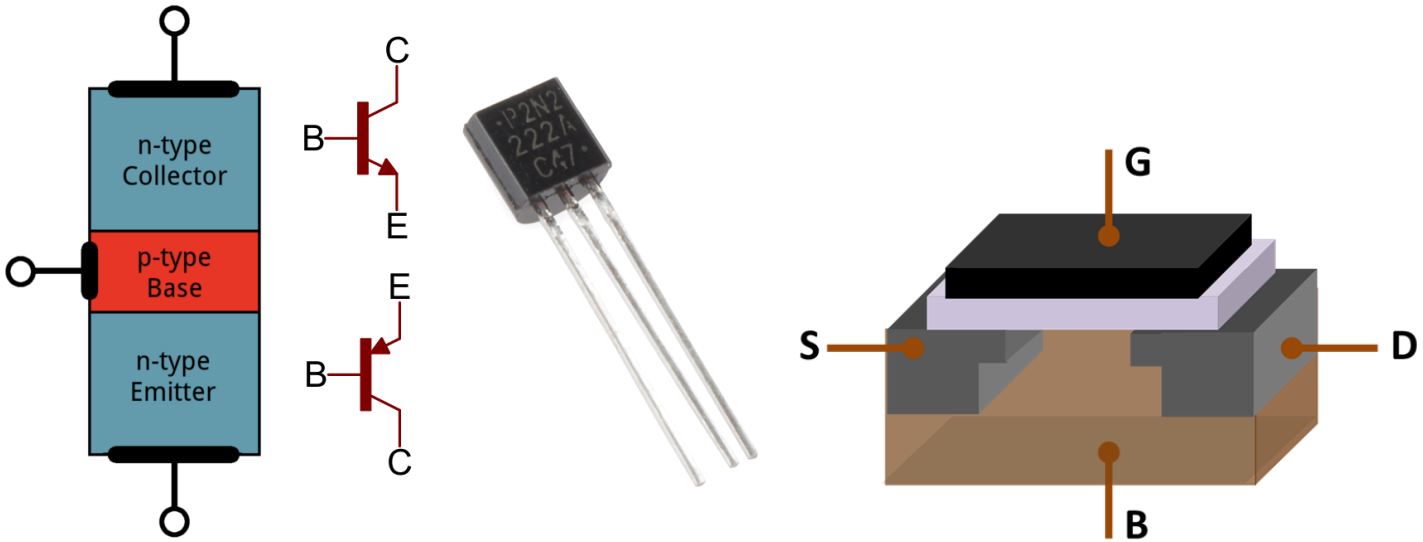
- In Python and many other programming languages, each variable has a type determined by the programmer during Initialization.
- The type can be explicitly used in the initialization for clarity.

Variables and Type

The type can be explicitly used in the initialization for clarity.

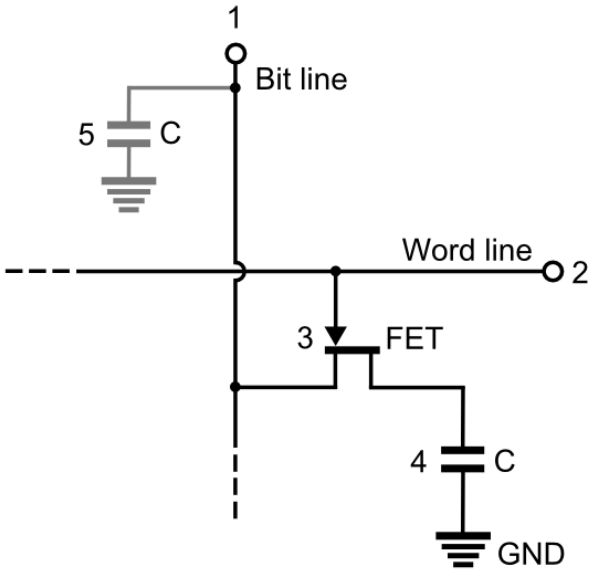
```
value_A = int(100);

value_B = complex(25.56j);

course = str("ENGR1220-021-GSET")
```

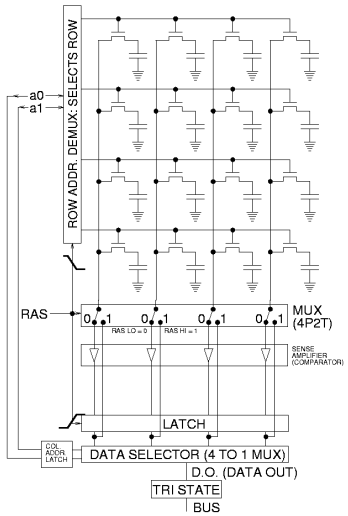
Assignment and Memory

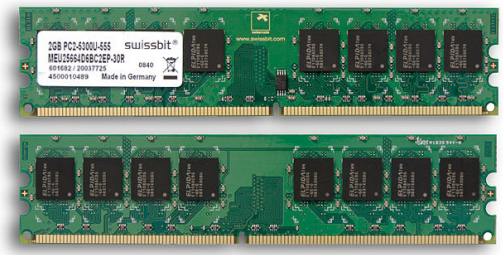


Sparkfun - Transistor
Wikipedia - Transistor

Assignment and Memory







Wikipedia - Memory Cell
Wikipedia - Semiconductor Memory Wikipedia - RAM

Assignment and Memory

The Assignment Operator

```
val_A = 53214

val_B = 0
```

- In Python and many other programming languages, variables are assigned a value using the equals sign. This is called assignment.
- Typically the value in the variable can be changed, or re-assigned.
- The expression on the right hand side may contain literal values or variables, operators, and functions.

Assignment and Memory

Arithmetic Operators in Python

Operator	Name	Example
+	Addition	x+y
-	Subtraction	x-y
*	Multiplication	x*y
/	Division	x/y
%	Modulus	x%y
**	exponetiation	x**y
//	floor division	x//y

A *Riddle*

Question:

What is the maximum number of rupees that you can hold in the original *Legend of Zelda* video game?

Answer:

A Python Example

```
# Variables and Assigment - Python - June 6, 2023

val = 56

print("The value is: ",val)
```