

# Python Basics Course

## Topic: Identifiers, Variables, Type Casting, Operators & Expressions

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### 1. Identifiers in Python

#### What is an Identifier?

An **identifier** is the **name given to a variable, function, class, or object** in Python.

In simple words:

Identifier = Name used in a program

#### Examples of Identifiers:

```
age
student_name
totalMarks
```

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### 2. Rules for Naming Identifiers

#### Valid Rules:

- ✓ Must start with a **letter (a-z or A-Z)** or **underscore (\_)**
- ✓ Can contain **letters, numbers, and underscore**
- ✓ Cannot start with a **number**
- ✓ Cannot use Python **keywords** (if, for, while, class, etc.)
- ✓ No spaces allowed
- ✓ Case-sensitive (`Age` and `age` are different)

#### Valid Identifiers:

```
name
_age
marks1
student_name
```

## Invalid Identifiers:

```
1name      # ✗ starts with number
student name # ✗ space not allowed
class       # ✗ keyword
```

### **Important Exam Note:**

Identifiers must follow naming rules, otherwise program gives error.

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## **3. Variables in Python**

### **What is a Variable?**

A **variable** is used to **store data (value)** in memory.

Example:

```
age = 20
name = "Ram"
```

Here:

- age → variable name
  - 20 → value
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## **4. Rules for Naming Variables**

Variable naming rules are **same as identifier rules**.

- ✓ Must start with letter or \_
- ✓ No space allowed
- ✓ Cannot start with number
- ✓ Cannot use keywords
- ✓ Case-sensitive

### **Good Variable Names:**

```
student_age = 21
total_marks = 80
```

## Bad Variable Names:

```
2age = 20      #   
my age = 21   # 
```



### Tip for Students:

Always use meaningful variable names.

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## 5. Type Casting in Python

### What is Type Casting?

Type casting means **converting one data type into another**.

Example:

```
x = "10"  
y = int(x)
```

Here, string "10" is converted into integer 10.

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## 6. Types of Type Casting

There are **two types** of type casting in Python:

- 1  Implicit Type Casting
  - 2  Explicit Type Casting
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## 7. Implicit Type Casting

### Meaning:

Python automatically converts one data type to another.

### Example:

```
a = 10      # int  
b = 2.5     # float
```

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

Output:

```
12.5
```



### Explanation:

- a is int
  - b is float
  - Python converts a into float automatically
- 



## 8. Explicit Type Casting

### Meaning:

User manually converts one data type to another using functions.

### Common Type Casting Functions:

- int()
  - float()
  - str()
  - bool()
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#### a) int() Casting

Converts data into integer.

```
x = "25"
y = int(x)
print(y)
```

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#### b) float() Casting

Converts data into float.

```
x = 10
y = float(x)
print(y)
```

---

### c) `str()` Casting

Converts data into string.

```
x = 100
y = str(x)
print(y)
```

---

### d) `bool()` Casting

Converts data into boolean.

```
x = 1
print(bool(x))
```



#### Note:

- $0 \rightarrow \text{False}$
  - Any non-zero value  $\rightarrow \text{True}$
- 



## 9. Operators in Python

### What is an Operator?

An operator is a **symbol used to perform operations** on data.

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## 10. Types of Operators (Basic)

### 1\square Arithmetic Operators

Used for mathematical calculations.

Operator	Meaning	Example
+	Addition	$10 + 5$
-	Subtraction	$10 - 5$
*	Multiplication	$10 * 5$
/	Division	$10 / 5$

### Example:

```
a = 10
b = 5
print(a + b)
```

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## 2□ Assignment Operator

Used to assign value.

```
x = 10
```

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## 3□ Comparison Operators

Used to compare values.

### Operator Meaning

==	Equal
!=	Not equal
>	Greater than
<	Less than

### Example:

```
x = 10
y = 5
print(x > y)
```

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## 4□ Logical Operators

Used with conditions.

### Operator Meaning

and	Both true
or	Any true
not	Reverse result

### Example:

```
a = True
b = False
print(a and b)
```

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## 11. Expressions in Python

### What is an Expression?

An **expression** is a combination of **variables, values, and operators** that produces a result.

#### Example:

```
x = 10 + 5
```

Here:

- `10 + 5` is an expression
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### More Simple Expressions:

```
result = 5 * 2
check = 10 > 3
```

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## ★ Important Exam Notes

- ✓ Identifier is a name in program
  - ✓ Variable stores value
  - ✓ Variable naming rules = Identifier rules
  - ✓ Type casting converts data types
  - ✓ Implicit casting is automatic
  - ✓ Explicit casting is manual
  - ✓ Expression produces a result
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## ⟳ Conclusion

This lesson covered:

- Identifiers & variable rules
- Type casting concepts
- Operators and expressions

These are **core fundamentals** of Python and are used in **every program**.

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★ *Understanding these basics makes Python very easy to learn!*