

Format Specifiers in String Formatting

In Python, ``%d``, ``%s``, ``%f``, and ``%c`` are known as format specifiers used in string formatting. They are used to control how variables are interpolated into a string.

1. ``%d``: This is used to format integers.

Example:

```
age = 25
message = "I am %d years old." % age
print(message)
```

Output:

I am 25 years old.

2. ``%s``: This is used for formatting strings.

Example:

```
name = "John"
message = "My name is %s." % name
print(message)
```

Output:

My name is John.

3. ``%f``: This is used for formatting floating-point numbers (floats).

Example:

```
pi = 3.14159
message = "The value of pi is approximately %.2f." % pi
print(message)
```

Output:

The value of pi is approximately 3.14.

In the above example, ``%.2f`` specifies that the float should be formatted with two decimal places.

Note: In newer Python (3.6+) versions, f-strings are a more modern and convenient way to format strings. They allow you to embed expressions directly inside string literals, using curly braces `{}`.

Here are the examples above using f-strings:

1. ``%d`` with f-string:

```
age = 25
message = f"I am {age} years old."
print(message)
```

2. `%s` with f-string:

```
name = "John"
message = f"My name is {name}."
print(message)
```

3. `%f` with f-string:

```
pi = 3.14159
message = f"The value of pi is approximately {pi:.2f}."
print(message)
```

Output for all three examples using f-strings will be the same as the previous examples.

`%c`: This is used for formatting a single character.

Example:

```
char = 'A'
print("Character: %c" % char)
```

Output:

Character: A