

# Classes: Takeaways

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## Syntax

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### DEFINING A CLASS

- To define a class:

```
class Dataset:
    def __init__(self):
        self.type = "csv"
```

- To initialize a class:

```
new_dataset = Dataset()
```

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### PASSING ADDITIONAL ARGUMENTS TO THE INITIALIZER

- Adding a variable to the initializer:

```
class Dataset:
    def __init__(self, data):
        self.data = data
```

- Initializing a class and accessing an attribute:

```
csv_dataset = Dataset(csv_data)
print(csv_dataset.data[:10])
```

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### ADDING BEHAVIORS

- Adding a method to our class:

```
class Dataset:
    def __init__(self, data):
        self.data = data

    def print_data(self):
        # New method **remember to add self**.
        print(self.data[:10])
```

- Using the method from our class:

```
nfl_dataset = Dataset(nfl_data)
nfl_dataset.print_data() # Prints the first 10 rows.
```

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### ENHANCING THE INITIALIZER

- Adding a header variable:

```
def extract_header(self):
    self.header = self.data[0]
    self.data = self.data[1:] # set data
```

- Accessing this header variable:

```
nfl_dataset = Dataset(nfl_data)
nfl_header = nfl_dataset.header
```

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## MAKING OBJECTS READABLE

- To use a special method to print:

```
class Dataset:
    def __init__(self, data):
        self.header = data[0]
        self.data = data[1:]
    def __str__(self):
        data_string = self.data[:10]
        return str(data_string)
```

## Concepts

- Python is an **object-oriented programming** language. Everything we use in python is created from a class. Think of a class as a **blueprint** used to construct objects.
- Each blueprint shares the same functions. A function defined in a class is called a **method**.
- A class bundles up logically grouped functions and variables. These groups are called **attributes**. This promotes code **abstraction** which helps us avoid repeating the same code.
- The initialization method creates the instance of the new object and sets those attributes to the instance.
- Whenever we instantiate a new class, we will need to define a **self** variable. `self` is required to define the instance of class.

## Resources

- [Python Documentation on Classes](#)
- [A list of all the built-in methods in Python Classes.](#)