This is CS50

Week 6

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Preceptor

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Agenda

- Syntax
- For Loops
- Dictionaries
- File I/O

Syntax

```
char *phrase = get_string("...");
```

```
phrase = input("...")
```

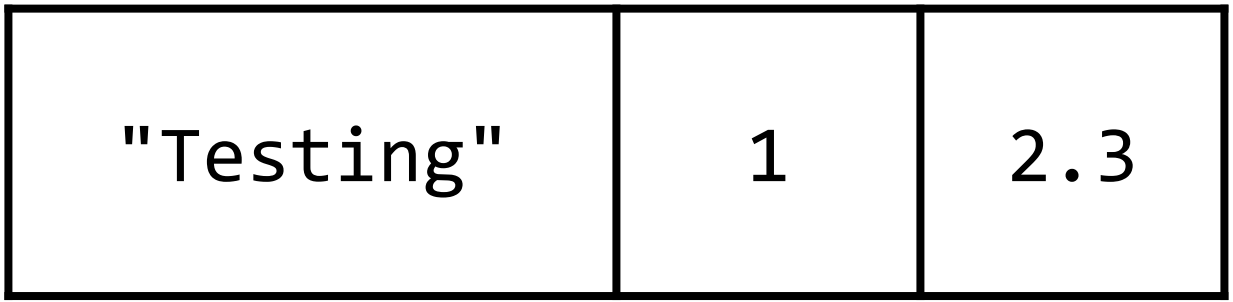
```
if (strcmp(phrase, "hello") == 0)
{
    printf("Hi, %s!\n", name);
}
```

```
if phrase == "hello":
    print(f"Hi, {name}!")
```

```
my_list = ["Testing", 1, 2.3]
```

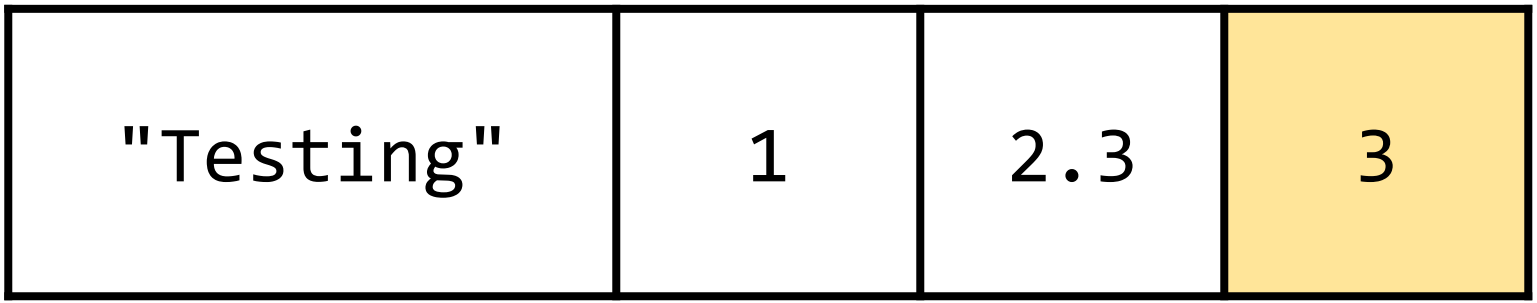
```
my_list = ["Testing", 1, 2.3]
```

my_list



```
my_list.append(3)
```

```
my_list
```



```
my_list.append(3)
```

```
my_list.append()
        insert()
        pop()
        reverse()
        sort()
        …
```

```
phrase = “You're off to Great Places”
```

```
phrase = “You're off to Great Places”
```

```
phrase.lower()
```

```
phrase = “You're off to Great Places”
```

```
phrase.lower()
```

```
phrase = “you're off to great places”
```

```
phrase = “You're off to Great Places”
```

```
phrase.capitalize()
```

```
phrase = “You're off to Great Places”
```

```
phrase.capitalize()
```

```
phrase = “You're off to great places”
```

```
phrase.lower()
      capitalize()
      isspace()
      split()
      strip()
      upper()
      …
```

For Loops

```
for (int i = 0; i < 3; i++)
{
    print(i)
}
```

```
for i in [0, 1, 2]:
  print(i)
```

```
for (int i = 0; i < 3; i++)
{
    print(i)
}
```

```
for i in range(0, 3, 1):
    print(i)
```

```
for i in range(0, 3, 1):
    print(i)
```

Start (inclusive)

```
for i in range(0, 3, 1):
    print(i)
```

End (exclusive)

```
for i in range(0, 3, 1):
    print(i)
```

Step

```
for i in range(0, 3, 1):
    print(i)
```

```
for (int i = 0; i < 3; i++)
{
    print(i)
}
```

```
for i in range(3):
    print(i)
```

```
phrase = “You're off to Great Places”
```

```
for i in range(len(phrase)):
    print(phrase[i])
```

```
phrase = “You're off to Great Places”
```

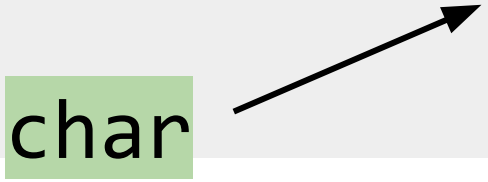
```
for char in phrase:
    print(char)
```

```
phrase = “You're off to Great Places”
```

char

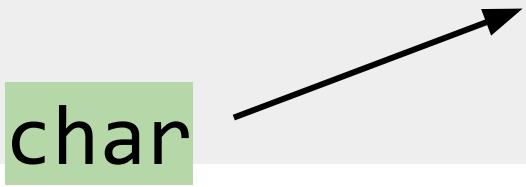
```
for char in phrase:
    print(char)
```

```
phrase = “You're off to Great Places”
```




```
for char in phrase:
    print(char)
```

```
phrase = “You're off to Great Places”
```




```
for char in phrase:
    print(char)
```

```
phrase = “You're off to Great Places”
```


```
for char in phrase:
    print(char)
```

String Predictions

Download and open **str_prediction.py** in cs50.dev.

Predict the what will be printed out for each "Round" of string manipulation in Python. Try guessing without running **str_prediction.py** first!

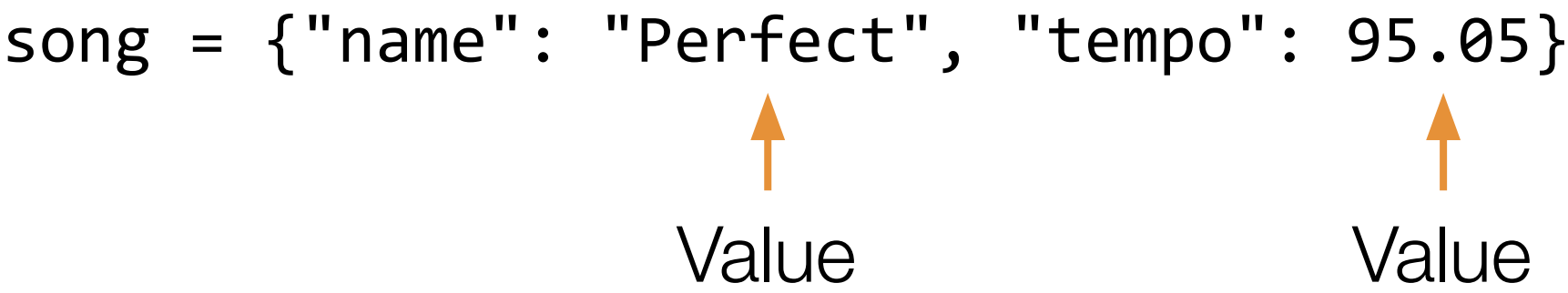
Dictionaries

```
song = {"name": "Perfect", "tempo": 95.05}
```

```
song = {"name": "Perfect", "tempo": 95.05}
```

Key

Key


song = {"name": "Perfect", "tempo": 95.05}
Value
Value

```
song = {"name": "Perfect", "tempo": 95.05}
```

song	
"name"	"Perfect"
"tempo"	95.05

```
song["name"]
```

song	
"name"	"Perfect"
"tempo"	95.05

```
song["album"] = "Divide"
```

song	
"name"	"Perfect"
"tempo"	95.05
"album"	"Divide"

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

songs[0]

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

songs[3]

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

songs[3]["name"]

```
songs =
[{"name": "Perfect", "tempo": 95.05},
{"name": "Eastside", "tempo": 89.391},
{"name": "Wolves", "tempo": 124.946},
{"name": "Him & I", "tempo": 87.908}]
```

2018 top 100

```
name,tempo
God's Plan,77.169
SAD!,75.023
rockstar (feat. 21 Savage),159.847
Psycho (feat. Ty Dolla $ign),140.124
In My Feelings,91.03
Better Now,145.028
...
```

File I/O

```
with open(FILENAME) as file:
```

```
with open(FILENAME) as file:
    file_reader = csv.DictReader(file)
```

```
with open(FILENAME) as file:
    file_reader = csv.DictReader(file)
    for row in file_reader:
```

```
with open(FILENAME) as file:
    file_reader = csv.DictReader(file)
    for row in file_reader:
        ...
```

Crafting Playlists

Download **playlist.py** and **2018_top100.csv**.

Complete the TODOs in **playlist.py** so that a user can build a playlist of popular songs within a tempo range.

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