

Week 8

last time

machine learning

this time



C

Python

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    printf("hello, world\n");
```

```
}
```



```
print("hello, world")
```

```
def main():  
    print("hello, world")  
  
if __name__ == "__main__":  
    main()
```

functions

```
printf("hello, world\n");
```

```
print("hello, world")
```

loops

```
while (true)
{
    printf("hello, world\n");
}
```

```
while True:  
    print("hello, world")
```



```
for (int i = 0; i < 50; i++)  
{  
    printf("hello, world\n");  
}
```

```
for i in range(50):  
    print("hello, world")
```

variables

```
int i = 0;
```

$$i = 0$$

# Boolean expressions

$i < 50$

$$x < y$$



conditions

```
if (x < y)
{
    printf("x is less than y\n");
}
else if (x > y)
{
    printf("x is greater than y\n");
}
else
{
    printf("x is equal to y\n");
}
```

```
if x < y:  
    print("x is less than y")  
elif x > y:  
    print("x is greater than y")  
else:  
    print("x is equal to y")
```

arrays

argv[0]

```
sys.argv[0]
```

source code

```
def main():  
    print("hello, world")
```



compiler

bytecode

|   |    |               |   |                                |
|---|----|---------------|---|--------------------------------|
| 2 | 0  | LOAD_GLOBAL   | 0 | (print)                        |
|   | 3  | LOAD_CONST    | 1 | ('hello, world')               |
|   | 6  | CALL_FUNCTION | 1 | (1 positional, 0 keyword pair) |
|   | 9  | POP_TOP       |   |                                |
|   | 10 | LOAD_CONST    | 0 | (None)                         |
|   | 13 | RETURN_VALUE  |   |                                |

interpreter

```
clang hello.c
```

```
./a.out
```

```
python hello.py
```

./hello

cs50.get\_char

cs50.get\_float

cs50.get\_int

cs50.get\_string

...



bool

float

int

str

...

...

complex

list

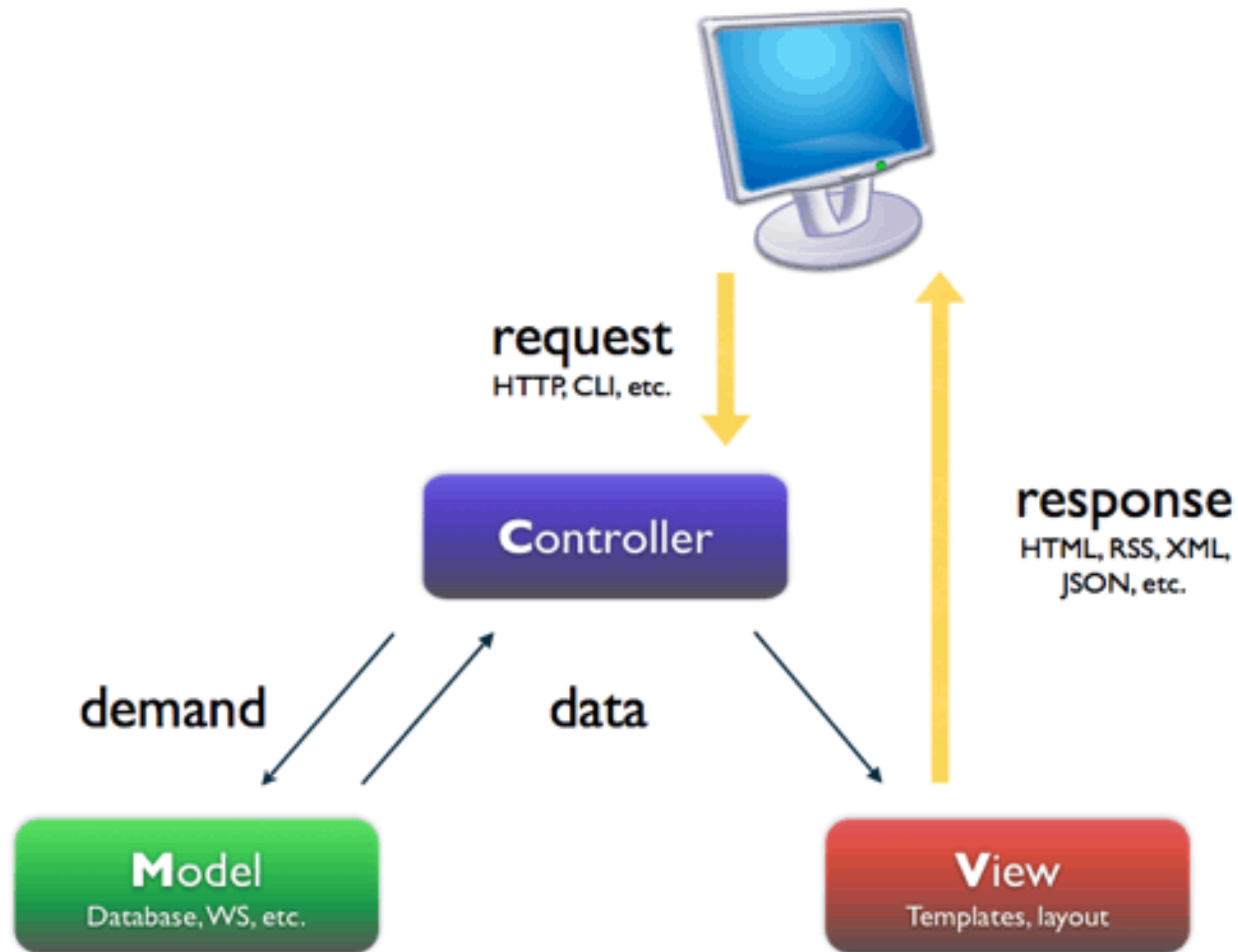
tuple

range

set

dict

...





# Flask

web development,  
one drop at a time

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