



```
from cs50 import eprint
```

Log into Facebook

Email or Phone Number

Password

Log In

Recover Your Account

Sign up for Facebook

GET / HTTP/1.1
Host: www.facebook.com

...

HTTP/1.1 200 OK
Content-Type: text/html

...

HTTP/1.1 200 OK

Content-Type: text/html

Set-Cookie: session=value

...

HTTP/1.1 200 OK

Content-Type: text/html

Set-Cookie: session=**value**

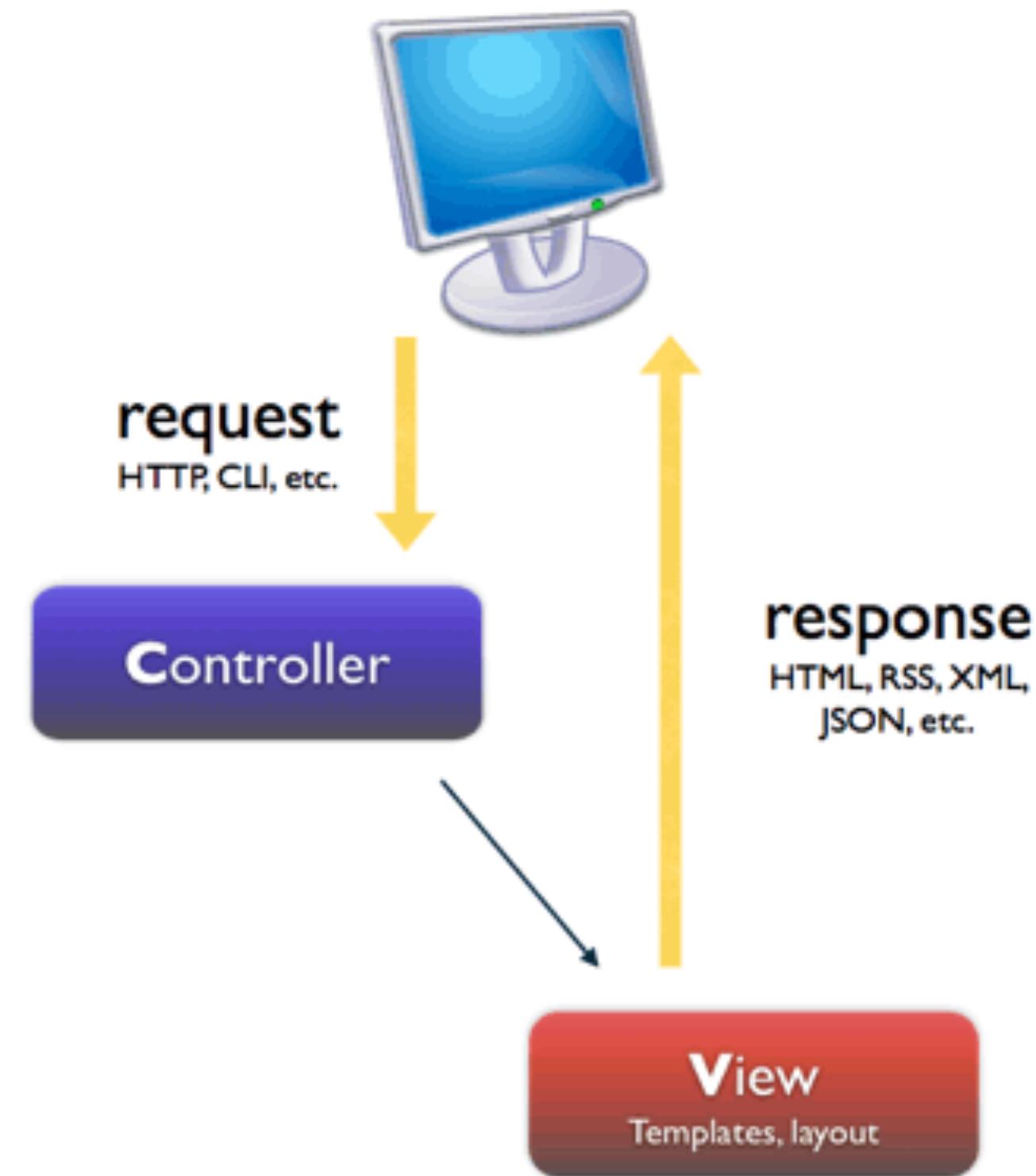
...

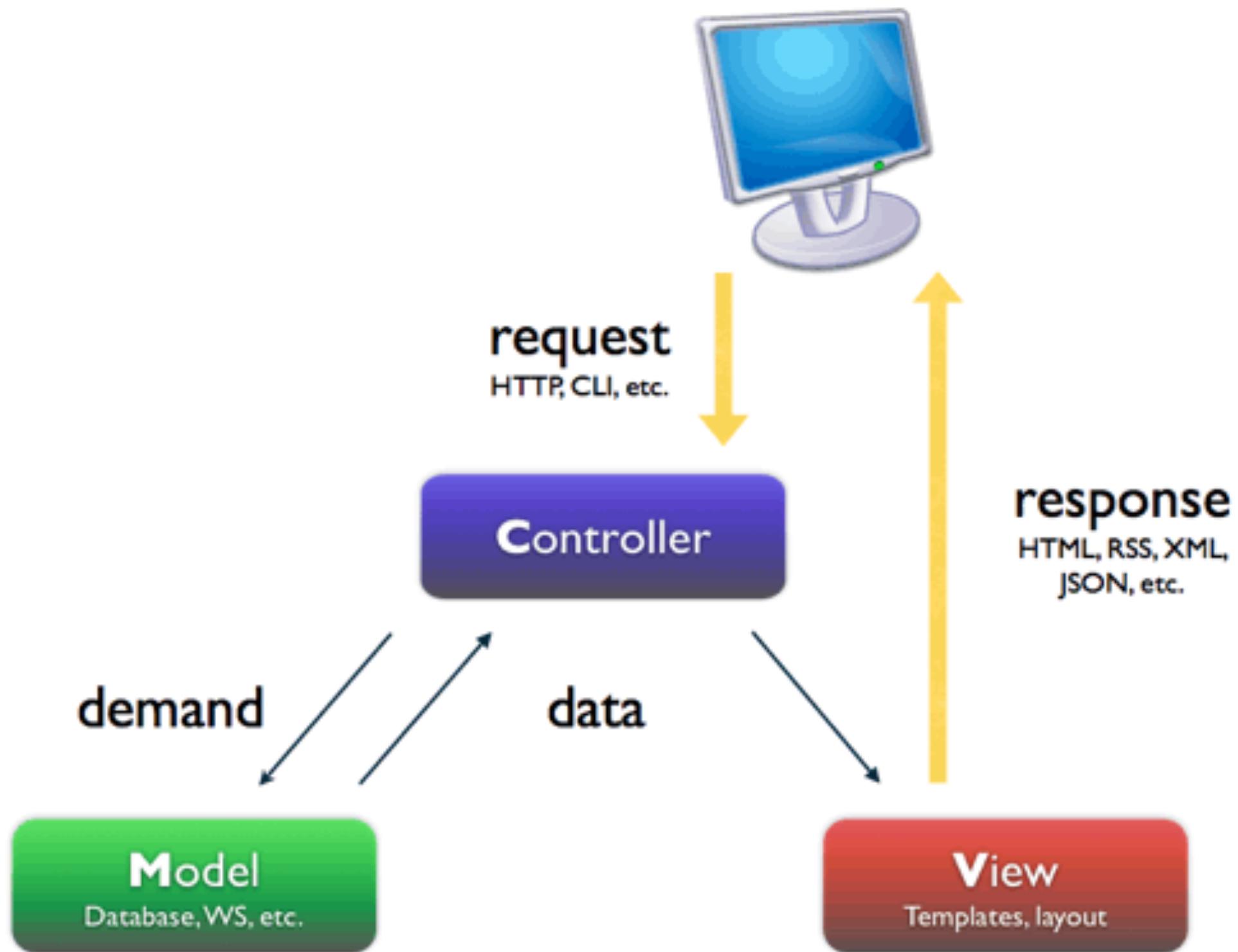
GET / HTTP/1.1
Host: www.facebook.com

...

GET / HTTP/1.1
Host: www.facebook.com
Cookie: session=value

...









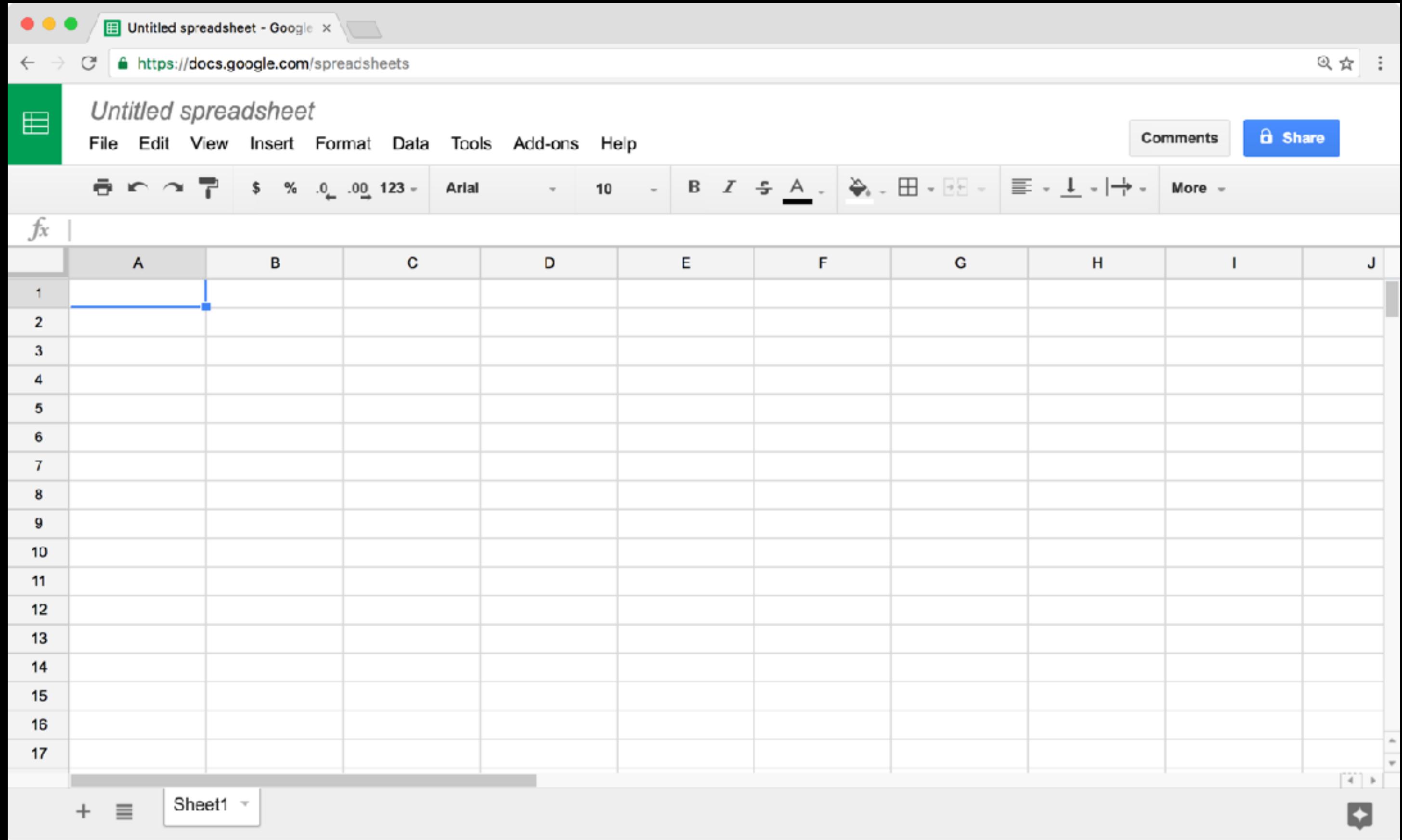
C



Python



SQL







sqlite3

CREATE ...

INSERT ...

SELECT ...

UPDATE ...

DELETE ...

... .

```
CREATE TABLE 'registrants'  
    ('id' INTEGER PRIMARY KEY, 'name' TEXT, 'dorm' TEXT)
```

```
INSERT INTO "registrants" ("id", "name", "dorm")  
VALUES(1, 'David', 'Matthews')
```

```
SELECT * FROM "registrants"
```

```
UPDATE "registrants" SET "name" = 'David Malan' where id = 1
```

```
DELETE FROM "registrants" WHERE id = 1
```

...

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```

...

BLOB

INTEGER

NULL

REAL

TEXT

DATETIME

NUMERIC

• • •

Example Typenames From The CREATE TABLE Statement or CAST Expression	Resulting Affinity
INT INTEGER TINYINT SMALLINT MEDIUMINT BIGINT UNSIGNED BIG INT INT2 INT8	INTEGER
CHARACTER(20) VARCHAR(255) VARYING CHARACTER(255) NCHAR(55) NATIVE CHARACTER(70) NVARCHAR(100) TEXT CLOB	TEXT
BLOB <i>no datatype specified</i>	BLOB
REAL DOUBLE DOUBLE PRECISION FLOAT	REAL
NUMERIC DECIMAL(10,5) BOOLEAN DATE DATETIME	NUMERIC

`date`

`time`

`datetime`

• • •

PRIMARY KEY

UNIQUE

INDEX

NOT NULL

FOREIGN KEY

...

JOIN

• • •

```
db = cs50.SQL("sqlite:///lecture.db")
```

BEGIN TRANSACTION

COMMIT

ROLLBACK

SQL injection attack

Login required

You may establish Yale authentication now in order to access protected services later.

NetID:

Password:



Warn me before logging me in to other sites.

Login

Please Log In

To log in, please select your login type from the tabs below and enter your credentials. If you're not sure what login type to use, [look here for how you login with HarvardKey](#).

HarvardKey

HUID

eCommons

XID

Login Name (in the form of an email address):

Password:

Login

Please Log In

To log in, please select your login type from the tabs below and enter your credentials. If you're not sure what login type to use, [look here for how you login with HarvardKey](#).

HarvardKey

HUID

eCommons

XID

Login Name (in the form of an email address):

Password:

Login

```
username = request.form.get("username")
password = request.form.get("password")

db.execute(f"SELECT * FROM users
WHERE username = '{username}' AND password = '{password}'")
```

```
username = request.form["username"]
password = request.form["password"]

db.execute("SELECT * FROM users
WHERE username = 'me@examplemailprovider.com' AND password = '' OR '1' = '1'')
```

```
username = request.form["username"]
password = request.form["password"]

db.execute("SELECT * FROM users
WHERE username = :username AND password = :password", username=username, password=password)
```

```
username = request.form["username"]
password = request.form["password"]

db.execute("SELECT * FROM users
WHERE username = 'me@examplemailprovider.com' AND password = '\' OR \'1\' = \'1\'')
```



ZU 0666',0,0); DROP DATABASE TABL ICE



RENAULT PARIS-CORSE 100% VITALE 100% FRAIS 100% DÉCOUVRABLE

HI, THIS IS
YOUR SON'S SCHOOL.
WE'RE HAVING SOME
COMPUTER TROUBLE.



OH, DEAR - DID HE
BREAK SOMETHING?

IN A WAY -)



DID YOU REALLY
NAME YOUR SON
Robert'); DROP
TABLE Students;-- ?

OH, YES. LITTLE
BOBBY TABLES,
WE CALL HIM.



WELL, WE'VE LOST THIS
YEAR'S STUDENT RECORDS.
I HOPE YOU'RE HAPPY.



AND I HOPE
YOU'VE LEARNED
TO SANITIZE YOUR
DATABASE INPUTS.



C\$50 Finance: Portfolio

finance.cs50.net

C\$50 Finance

Quote Buy Sell History Log Out

Symbol	Name	Shares	Price	TOTAL
NFLX	Netflix, Inc.	1	\$193.77	\$193.77
CASH				\$9,806.23
				\$10,000.00



CS50

H

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