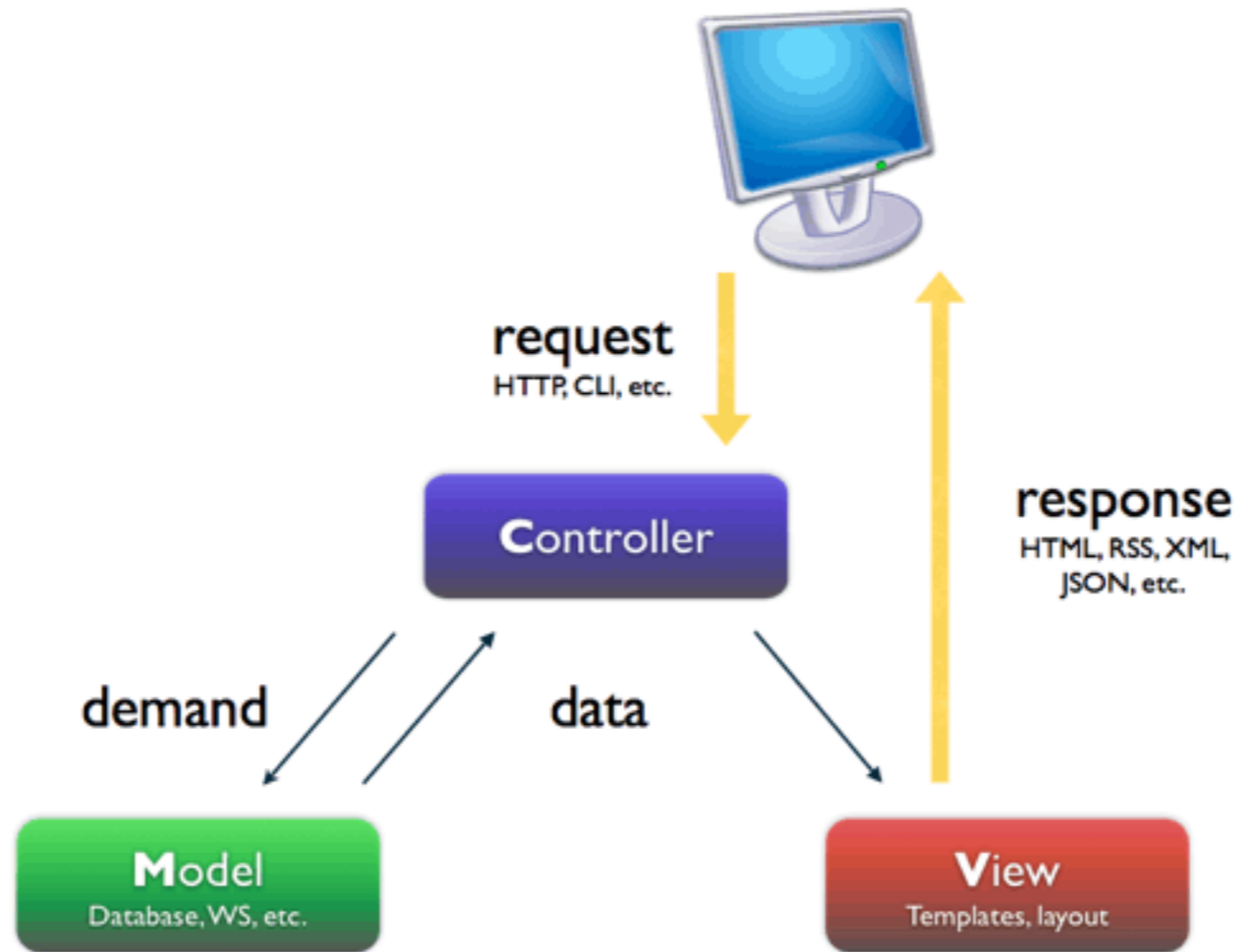


# lecture 2

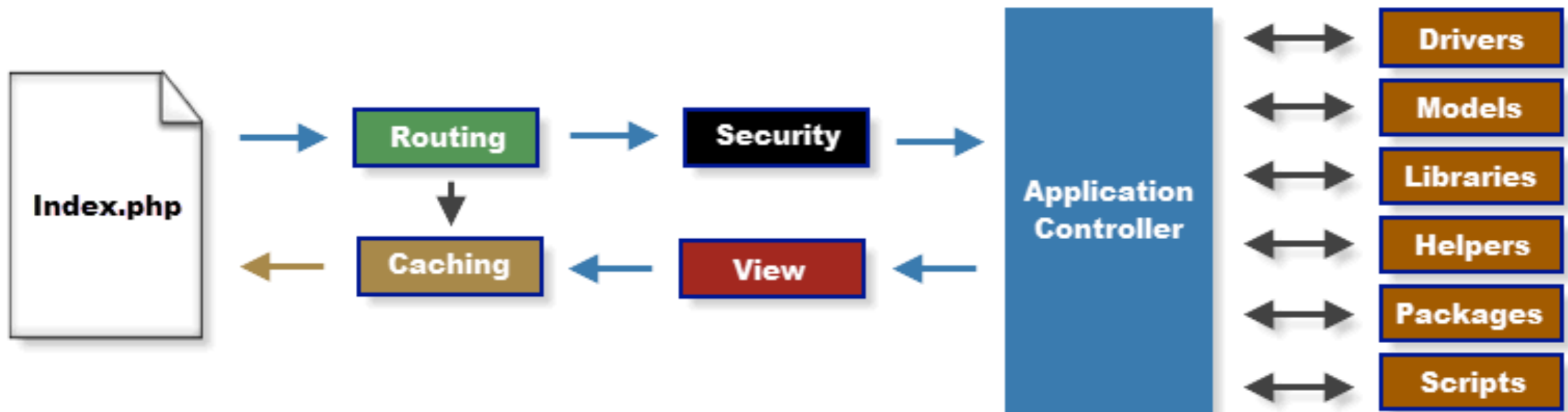
# lab 2

branches, databases

# MVC



# CodeIgniter



# controllers

[http://example.com/\[controller-class\]/\[controller-method\]/\[arguments\]](http://example.com/[controller-class]/[controller-method]/[arguments])

database design

Workbook1

100% Search in Sheet

Home Layout Tables Charts SmartArt Formulas Data Review

Edit Font Alignment Number Format Cells Themes

Paste Calibri (Body) 12 abc Wrap Text General Conditional Formatting Styles Actions Themes Aa

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Sheet1 +

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Desktop — jharvard@appliance:~ — ssh — 80x24



```
jharvard@appliance (~): mysql -u jharvard -p
```

```
Enter password:
```

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
```

```
Your MySQL connection id is 40
```

```
Server version: 5.5.19 MySQL Community Server (GPL)
```

```
Copyright (c) 2000, 2011, Oracle and/or its affiliates. All rights reserved.
```

```
Oracle is a registered trademark of Oracle Corporation and/or its  
affiliates. Other names may be trademarks of their respective  
owners.
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
mysql> █
```



**Employees:**

Employee_ID	Name
01	Hansen, Ola
02	Svendson, Tove
03	Svendson, Stephen
04	Pettersen, Kari

**Orders:**

Prod_ID	Product	Employee_ID
234	Printer	01
657	Table	03
865	Chair	03

```
SELECT Employees.Name, Orders.Product  
FROM Employees, Orders  
WHERE Employees.Employee_ID=Orders.Employee_ID
```

**Employees:**

Employee_ID	Name
01	Hansen, Ola
02	Svendson, Tove
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**Orders:**

Prod_ID	Product	Employee_ID
234	Printer	01
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```
SELECT Employees.Name, Orders.Product  
FROM Employees, Orders  
WHERE Employees.Employee_ID=Orders.Employee_ID
```

Name	Product
Hansen, Ola	Printer
Svendson, Stephen	Table
Svendson, Stephen	Chair

**Employees:**

Employee_ID	Name
01	Hansen, Ola
02	Svendson, Tove
03	Svendson, Stephen
04	Pettersen, Kari

**Orders:**

Prod_ID	Product	Employee_ID
234	Printer	01
657	Table	03
865	Chair	03

```
SELECT Employees.Name, Orders.Product  
FROM Employees  
JOIN Orders ON Employees.Employee_ID=Orders.Employee_ID
```

Name	Product
Hansen, Ola	Printer
Svendson, Stephen	Table
Svendson, Stephen	Chair

# indexes

- PRIMARY
- INDEX
- UNIQUE
- FULLTEXT

**Table 13.1. Storage Engines Feature Summary**

Close

Feature	MyISAM	Memory	InnoDB	Archive	NDB
Storage limits	256TB	RAM	64TB	None	384EB
Transactions	No	No	Yes	No	Yes
Locking granularity	Table	Table	Row	Table	Row
MVCC	No	No	Yes	No	No
Geospatial data type support	Yes	No	Yes	Yes	Yes
Geospatial indexing support	Yes	No	No	No	No
B-tree indexes	Yes	Yes	Yes	No	Yes
Hash indexes	No	Yes	No <sup>[a]</sup>	No	Yes
Full-text search indexes	Yes	No	No	No	No
Clustered indexes	No	No	Yes	No	No
Data caches	No	N/A	Yes	No	Yes
Index caches	Yes	N/A	Yes	No	Yes
Compressed data	Yes <sup>[b]</sup>	No	Yes <sup>[c]</sup>	Yes	No
Encrypted data <sup>[d]</sup>	Yes	Yes	Yes	Yes	Yes
Cluster database support	No	No	No	No	Yes
Replication support <sup>[e]</sup>	Yes	Yes	Yes	Yes	Yes
Foreign key support	No	No	Yes	No	No
Backup / point-in-time recovery <sup>[f]</sup>	Yes	Yes	Yes	Yes	Yes
Query cache support	Yes	Yes	Yes	Yes	Yes
Update statistics for data dictionary	Yes	Yes	Yes	Yes	Yes

# race conditions



# atomicity

```
INSERT INTO table (id, symbol, shares) VALUES(7, 'AFLB.OB', 10)  
ON DUPLICATE KEY UPDATE shares = shares + VALUES(shares)
```

# locks

```
LOCK TABLES account WRITE;  
SELECT balance FROM account WHERE number = 2;  
UPDATE account SET balance = 1500 WHERE number = 2;  
UNLOCK TABLES;
```



# transactions

```
START TRANSACTION;  
UPDATE account SET balance = balance - 1000 WHERE number = 2;  
UPDATE account SET balance = balance + 1000 WHERE number = 1;  
COMMIT;
```

# transactions

```
START TRANSACTION;  
UPDATE account SET balance = balance - 1000 WHERE number = 2;  
UPDATE account SET balance = balance + 1000 WHERE number = 1;  
SELECT balance FROM account WHERE number = 2;  
# suppose account #2 has a negative balance!  
ROLLBACK;
```

# PDO

```
$dsn = 'mysql:dbname=jharvard_lecture2;host=127.0.0.1';  
$user = 'jharvard';  
$password = 'crimson';
```

```
try  
{  
    $dbh = new PDO($dsn, $user, $password);  
}  
catch (PDOException $e)  
{  
    echo 'Connection failed: ' . $e->getMessage();  
}
```

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to be continued...