

Laboratorio Progettazione Web

Modello di applicazione Web

Andrea Marchetti– IIT-CNR

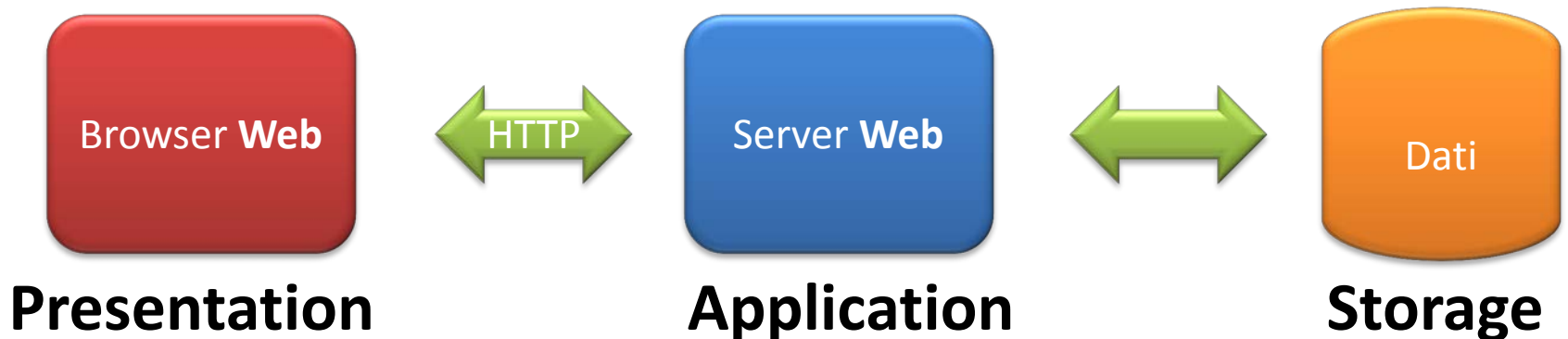
andrea.marchetti@iit.cnr.it

AA 2014/2015

INDICE

1. Libreria per accedere al DB Mysql
2. Esempio di un programma PHP che realizza un API restful
3. Scheletro HTML+Javascript per invocare la API restful

Livelli (Tiers) di un'applicazione web



Libreria Mysql

```
// selectSF.php
```

```
include("dbLibrary.php");  
$db = openDB("localhost", "root", NULL, "lpw");  
$sql="SELECT * FROM SanFrancisco";  
$records = select($db,$sql);  
closeDB($db);
```

```
//dbLibrary.php
```

```
openDB()  
select()  
closeDB()
```

Tabella SanFrancisco

| # | Name | Type |
|----|-------------------------|-------------|
| 1 | Location_ID | varchar(14) |
| 2 | Business_Account_Number | int(6) |
| 3 | Ownership_Name | varchar(32) |
| 4 | DBA Name | varchar(38) |
| 5 | Street_Address | varchar(33) |
| 6 | City | varchar(15) |
| 7 | State | varchar(2) |
| 8 | Zip_Code | int(5) |
| 9 | Business_Start_Date | varchar(22) |
| 10 | Location Start Date | varchar(22) |
| 11 | Mail_Address | varchar(59) |
| 12 | Mail_City_State_Zip | varchar(33) |
| 13 | Class Code | int(1) |
| 14 | PBC Code | varchar(4) |
| 15 | Coordinates | varchar(39) |
| 16 | Latitude | varchar(18) |
| 17 | Longitude | varchar(19) |



Application



Storage

<http://localhost/lpw/modello/mysql/selectSF.php>



selectSF.php

Tabella SanFrancisco



Presentation

Application

Storage



- JSON = JavaScript Object Notation
- Formato dati basato su coppie nome:valore
 - ricorda gli array associativi del PHP

```
{  
  DBA_Name: "1365-1373 CALIFORNIA PATS",  
  Street_Address: "1365 CALIFORNIA ST",  
  City: "San Francisco",  
  State: "CA",  
  Zip_Code: "94109",  
  Mail_Address: "1361 CALIFORNIA ST",  
  Mail_City_State_Zip: "SAN FRANCISCO CA 94109-4914",  
  Class_Code: "3",  
  PBC_Code: "5538",  
  Latitude: "37.791033570000479",  
  Longitude: "-122.4168462079997"  
}
```



- Comunemente usato per scambiare dati tra php e un browser usando AJAX
- Output PHP Json Content-Type
 - `header("Content-Type: application/json");`
- Conversione array Php in Json
 - `json_encode();`
- Usare una estensione come Json View per visualizzare bene su browser





```
<?PHP
$capitali[] = array("nazione"=>"Italia",      "capitale"=>"Roma");
$capitali[] = array("nazione"=>"Inghilterra", "capitale"=>"Londra");

header("Content-Type: application/json");
echo json_encode($capitali);

/** OUTPUT *****/
[
  {
    nazione: "Italia",
    capitale: "Roma"
  },
  {
    nazione: "Inghilterra",
    capitale: "Londra"
  }
]
*
*****/
?>
```


Recupero del parametro inviato in modalità GET

```
<?PHP
```

```
include("dbLibrary.php");
```

```
/* Recupero il parametro inviato con il metodo GET usando l'array associativo di sistema $_GET */
```

```
if(isset($_GET['zip'])) $zip = $_GET['zip'];
```

```
else $zip = "94109"; //valore di default
```

```
// Invoco il DB per recuperare le strutture definite con il parametro
```

```
$db = openDB("localhost", "root", $password, "lpw");
```

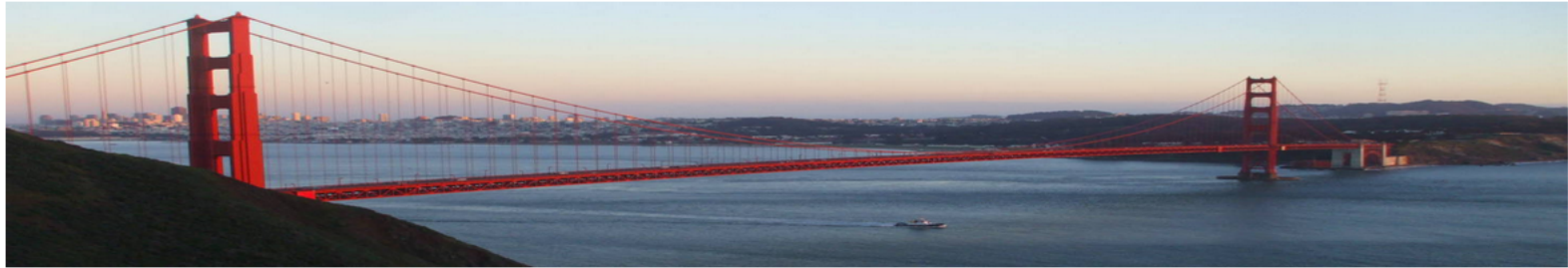
```
$records = select($db,"SELECT * FROM SanFrancisco WHERE zip_code='$zip'");
```

```
closeDB($db);
```

```
// Converto l'array in una stringa di formato json
```

```
echo(json_encode($records));
```

```
?>
```



San Francisco Accomodations

Zip Code selection 94102 94103 94104 94105 94107

Input

| DBA_Name | Street_Address | City | State | Zip_Code | Mail_Address | Mail_City_State_Zip | Class_Code | PBC_Code | Latitude | Longitude |
|--------------------------|----------------|---------------|-------|----------|-------------------------|-----------------------------|------------|----------|--------------------|---------------------|
| UNION SQUARE PLAZA HOTEL | 432 GEARY ST | San Francisco | CA | 94102 | 432 GEARY ST | SAN FRANCISCO CA 94102-1223 | 3 | 7096 | 37.787127334000445 | -122.41035310099971 |
| CHANCELLOR HOTEL | 433 POWELL ST | San Francisco | CA | 94102 | 433 POWELL ST | SAN FRANCISCO CA 94102-1503 | 3 | 7012 | 37.788672543000473 | -122.40852327699969 |
| 100 LAGUNA APTS | 100 LAGUNA ST | San Francisco | CA | 94102 | 133 KEARNY ST STE 203 | SAN FRANCISCO CA 94108-4809 | 3 | 5538 | 37.771928736000461 | -122.42530626099972 |
| MARINE MEMORIAL ASSN | 609 SUTTER ST | San Francisco | CA | 94102 | 609 SUTTER ST, SUITE 2M | SAN FRANCISCO CA 94102-1081 | 3 | 7000 | 37.788953700000491 | -122.41046602399967 |
| MARINE MEMORIAL ASSN | 609 SUTTER ST | San Francisco | CA | 94102 | 609 SUTTER ST, SUITE 2M | SAN FRANCISCO CA 94102-1081 | 3 | 7000 | 37.788953700000491 | -122.41046602399967 |
| OPERA PLAZA APT | 1 OPERA PLAZA | San Francisco | CA | 94102 | 4444 GEARY BLVD #100 | SAN FRANCISCO CA 94118-3040 | 3 | 5538 | 37.780459112000472 | -122.41763739599969 |
| 225 JONES APTS | 225 JONES ST | San Francisco | CA | 94102 | 141 JULIAN AV | SAN FRANCISCO CA 94103-3410 | 3 | 6511 | 37.783393940000451 | -122.41252284699971 |
| 225 JONES BLDG | 225 JONES ST | San Francisco | CA | 94102 | 141 JULIAN AV | SAN FRANCISCO CA 94103-3410 | 3 | 6511 | 37.783393940000451 | -122.41252284699971 |
| 147-151 PAGE APTS | 147 PAGE ST | San Francisco | CA | 94102 | 175 ROLPH ST | SAN FRANCISCO CA 94112-3726 | 3 | 5538 | 37.773953295000467 | -122.42321602199968 |
| METROPOLITAN CLUB | 640 SUTTER ST | San Francisco | CA | 94102 | 640 SUTTER ST | SAN FRANCISCO CA 94102-1018 | 3 | 7000 | 37.788937568000449 | -122.41107327599968 |

O
u
t
p
u
t

[see demo!!!](#)

#zip

Select Zip code

94102 94103

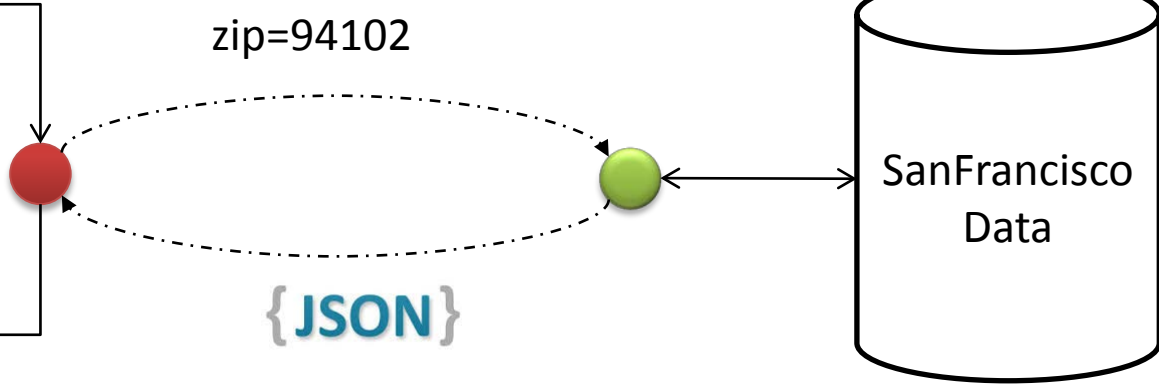
```

/* Associazione dell' evento click su #zip
con la funzione handler selectSF
$("#zip").on("click", selectSF);

```



zip=94102



| Lastname | Firstname | Street | Zip Code | City | Country | Type |
|------------|-----------|-------------------|----------|--------------------|---------|----------|
| Armbruster | Helen | New Leigh Road 11 | 62704 | Lakeland Grove 217 | USA | Business |
| Azberg | Julian | Herbertstrasse 5 | 5411 | Salzburg | Austria | Business |
| Hauptmann | Werner | Hauptstrasse 24 | 60300 | Frankfurt | Germany | Business |
| Sanjans | Arman | Spokane Creek 123 | 60M 100 | Soloway, Ontario | Canada | Private |
| Kuntz | Ingeborg | Liedergasse 6 | 1034 | Vienna | Austria | Private |
| Ludwig | Gustav | Hauptstr 5 | 29103 | Bremen | Germany | Private |
| Ludwig | Hildegard | Altestrasse 48 | 60316 | Frankfurt | Germany | Business |
| Helmreich | Ina | Richterweg 15 | 60309 | Frankfurt | Germany | Private |
| Melinda | Dija | Grünstrasse 42 | 1012 | Vienna | Austria | Private |
| Mazart | Martina | Haydnweg 4 | 5081 | Salzburg | Austria | Business |

```

function selectSF(){
$.getJSON(
  "mysql/selectSF.php",
  {zip: $("#zip input:checked").val()},
  function( resp ) { manageResults(resp); }
);
}

```



```

<?PHP
// SelectSF.php
include("dbLibrary.php");
$zip = $_GET['zip'];

$db = openDB("localhost", "root", $password, "lpw");
$sql = "SELECT * FROM SanFrancisco WHERE zip_code='$zip'";
$records = select($db,$sql);
closeDB($db);

echo(json_encode($records));
?>

```



Flusso del programma

| Agent | Action | Code |
|------------|--------------------------------------|--|
| User | EVENT: user clicks on zip code 94103 | |
| Handler JS | Starts | <code>\$("#zip").on("click", selectSF);</code> |
| Handler JS | Gets the zip code selected value | <code>\$("#zip input:checked").val()</code> |
| Handler JS | Call the php API | <code>\$getJSON("selectSF.php",parameter, function(output){})</code> |
| API php | Gets the zip code | <code>\$zip = \$_GET['zip'];</code> |
| API php | Makes a query | <code>SELECT * FROM SanFrancisco WHERE zip_code='\$zip'</code> |
| API php | Returns JSON data | <code>echo(json_encode(\$records));</code> |
| Handler JS | Display JSON data | |

Programmazione guidata da eventi

event-driven programming

- Definizione (wikipedia): **paradigma di programmazione** dove il **flusso del programma** è definito da eventi quali:
 - interazioni di utenti (mouse click, key press, mouse over)
 - interrupt di dispositivi (ex sensori)
 - messaggi da altri programmi
- Un programma event-driven generalmente rimane in attesa di un set di eventi, non appena uno di questi si verifica viene lanciato (**trigger**) un pezzo di codice (**callback function**)

Libreria JQuery

<https://jquery.com/download/>



- Navigazione del DOM – CSS Selector
 - `$("#zip input:checked").val()`
- Gestione degli eventi
 - `$("#zip").on("click" , selectSF) ;`
- Chiamate AJAX
 - `$getJSON("selectSF.php" , parameter , function(output) { })`
- Gestione array
 - `$.each(data , function(index , element) { }) ;`

Provare ad aggiungere un filtro sul nome della struttura

```
SELECT *  
FROM `sanfrancisco`  
WHERE zip_code=' $zip' " AND  
`DBA_Name` LIKE '$name%'
```