

Web programiranje

Vežbe 7 - Veza sa bazom podataka

Jedna od najvećih prednosti PHP-a u odnosu na neke druge platforme za web programiranje je podrška za različite RDBMS sisteme, uključujući MySQL, PostgreSQL, Oracle, MS SQL Server, MS Access itd.

Na ovom kursu će glavni akcenat biti dat upravo MySQL sistemu, i to pre svega iz razloga što je MySQL veoma brza, pouzdana i opcijama bogata baza podataka, a pored toga i besplatna i otvorenog koda. Njene prednosti naročito dolaze do izražaja pri konkurentnom pristupu desetina i stotina korisnika, što i jeste prirodno okruženje svake web aplikacije.

PHP može MySQL bazi pristupiti na tri načina, i to koristeći:

- **ext/mysql ekstenziju** - istorijski prvi, isključivo proceduralni pristup
- **ext/mysqli ekstenziju** - trenutno aktuelna biblioteka sa proceduralnim i objektnim interfejsom
- **ext/PDO ekstenzija** - PHP Data Objects koji obezbeđuje nivo apstrakcije bez obzira koji se konkretni RDBMS koristi, dakle omogućava da isti PHP kod radi na različitim RDBMS-ovima.

Ovde će biti reči o trenutno aktuelnim tehnologijama, a to su **mysqli** i **PDO**. Iako **PDO** pruža viši nivo apstrakcije, **mysqli** omogućava pristup nekim dodatnim mogućnostima specifičnim za MySQL.

Pristup MySQL bazi na lokalnom serveru

Osnovni pristup bazi podataka preko jezika PHP biće opisan u nekoliko koraka:

Korak 1 - kreiranje tabele:

```
c:\wamp\bin\mysql\mysql5.1.36\bin> mysql -u root //mysql -h <hostname> -u <username> -p  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 335  
  
Server version: 5.1.36-community-log MySQL Community Server <GPL>  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> show databases;  
+-----+  
| Database      |  
+-----+  
| information_schema |  
| mysql          |  
| tshirtshop     |  
+-----+  
3 rows in set (0.00 sec)
```

```
mysql> create database ime_baze;
mysql> use ime_baze;
Database changed
mysql> show tables;
Empty set (0.00 sec)
//new user
mysql> GRANT ALL PRIVILEGES ON ime_baze.* TO 'username'@'localhost' IDENTIFIED BY
'password';
mysql> create table knjiga (
    id int(11) NOT NULL auto_increment PRIMARY KEY,
    naslov varchar(255) NOT NULL default '',
    autor varchar(255) NOT NULL default '',
    godina int(11)
) ENGINE=MyISAM;

mysql> desc knjiga;
+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra           |
+-----+-----+-----+-----+
| id    | int(11)   | NO  | PRI | NULL    | auto_increment |
| naslov | varchar(255) | NO  |     |          |                 |
| autor | varchar(255) | NO  |     |          |                 |
| godina | int(11)   | YES |     | NULL    |                 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

Korak 2 - Unos podataka u bazu

```
mysql> select * from knjiga;
Empty set (0.00 sec)

mysql>insert into knjiga(id,naslov,autor,godina) values(1,'Sto godina samoce','Gabrijel
Garsija Markes', 1967);

mysql> insert into knjiga(naslov,autor,godina) values('Na Drini cuprija','Ivo Andric',
1955);
```

```
mysql> select * from knjiga;

+----+-----+-----+-----+
| id | naslov          | autor           | godina |
+----+-----+-----+-----+
| 1  | Sto godina samoce | Gabrijel Garsija Markes | 1967   |
| 2  | Na Drini cuprija | Ivo Andric       | 1955   |
+----+-----+-----+-----+
2 rows in set (0.00 sec)
```

Korak 3 - Pristup bazi iz PHP-a

```
<?php
    // postavljanje varijabli za pristup bazi
    $host = "localhost";
    $user = "username";
    $pass = "password";
    $baza = "ime_baze";
    echo "<h1>Knjige</h1>";
    // napravi mysqli objekat
    // otvori konekciju prema bazi
    $mysqli = new mysqli($host, $user, $pass, $baza);
    // da li je bilo gresaka?
    if ($mysqli_connect_errno()) {
        die("Ne mogu da se konektujem!");
    }
    // napravi upit
    $upit = "SELECT * FROM knjiga";
    // izvrsti upit
    $rezultat = $mysqli->query($upit);
    if ($rezultat) {
        //da li je bilo sta vraceno?
        if ($rezultat->num_rows > 0) {
            // da
            // stampaj jednu po jednu u obliku tabele
            echo "<table cellpadding=5 border=1>";
            while($red = $rezultat->fetch_array()) {
                echo "<tr>";
                echo "<td>".$red[0]."</td>";
                echo "<td>".$red[1]."</td>";
                echo "<td>".$red[2]."</td>";
                echo "<td>".$red[3]."</td>";
                echo "</tr>";
            }
            echo "</table>";
        }
    }
```

```
else {
    // ne
    // stampaj statusnu poruku
    echo "Nijedan red nije vracen!";
}
// osloboди memoriju
$rezultat->close();
}
else {
    // stampaj poruku o gresci
    echo "Greska u upitu: $upit. ".$mysqli->error;
}
// zatvori konekciju
$mysqli->close();
?>
```

Vraćanje rezultata u obliku asocijativnog niza

U gornjem primeru, rezultat upita je vraćen u vidu niza sa celobrojnim indeksima. Nešto intuitivniji pristup je vraćanje rezultata u obliku asocijativnog niza. Odgovarajuće redove u gornjem kodu treba zameniti sledećim redovima:

```
while($red = $rezultat->fetch_assoc()) {
    echo "<tr>";
    echo "<td>".$red['id']."</td>";
    echo "<td>".$red['naslov']."</td>";
    echo "<td>".$red['autor']."</td>";
    echo "<td>".$red['godina']."</td>";
    echo "</tr>";
}
```

Preuzimanje svih redova odjednom

```
$vrste = $rezultat->fetch_all(MYSQLI_ASSOC);
foreach ($vrste as $red) {
    echo "<tr>";
    echo "<td>".$red['id']."</td>";
    echo "<td>".$red['naslov']."</td>";
    echo "<td>".$red['autor']."</td>";
    echo "<td>".$red['godina']."</td>";
    echo "</tr>";
}
```

phpMyAdmin

Na lokalu je instalacijom WAMP servera instaliran i softver koji omogućava mnogo lakše rukovanje MySQL bazama podataka - **phpMyAdmin**. Ovaj softver je napisan u PHP-u i takođe je besplatan i otvorenog koda kao i ostale komponente WAMP-a. Adresa pristupa aplikaciji je:

<http://localhost:8080/phpmyadmin/>

The screenshot shows the phpMyAdmin 2.11.8.1deb5+lenny3 interface running in a web browser. The title bar indicates the version and the host as spider.pmf.kg.ac.rs / localhost. The left sidebar lists databases: 'information_schema (17)' and 'm5207 (1)'. A message 'Please select a database' is displayed. The main content area shows server statistics: Server version: 5.0.51a-24+lenny2, Protocol version: 10, Server: Localhost via UNIX socket, User: m5207@localhost. It also displays MySQL charset: UTF-8 Unicode (utf8) and MySQL connection collation: utf8_unicode_ci. On the right, there's a sidebar titled 'phpMyAdmin - 2.11.8.1deb5+lenny3' with options for MySQL client version, used PHP extensions, language (set to English), theme (set to Original), and font size (set to 82%). Below these are links to documentation, the homepage, and a changelog. The bottom right corner features the phpMyAdmin logo. At the very bottom, there's a 'Done' button.

Home ekran

Server: localhost > Database: m5207

Table	Action	Records	Type	Collation	Size	Overhead
knjiga		2	MyISAM	latin1_swedish_ci	2.1 KiB	-
1 table(s)	Sum	2	MyISAM	latin1_swedish_ci	2.1 KiB	0 B

Check All / Uncheck All With selected:

Create new table on database m5207

Name: Number of fields: Go

Open new phpMyAdmin window

Pregled tabela baze

Server: localhost > Database: m5207 > Table: knjiga

Field	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/> id	int(11)			No		auto_increment	
<input type="checkbox"/> naslov	varchar(255)	latin1_swedish_ci		No			
<input type="checkbox"/> autor	varchar(255)	latin1_swedish_ci		No			
<input type="checkbox"/> godina	int(11)			Yes	NULL		

Check All / Uncheck All With selected:

Add [1] field(s) At End of Table At Beginning of Table After id Go

Indexes:					Space usage		Row Statistics	
Keyname	Type	Cardinality	Action	Field	Type	Usage	Statements	Value
PRIMARY	PRIMARY	2		id	Data	100 B	Format	dynamic
					Index	2,048 B	Collation	latin1_swedish_ci
					Total	2,148 B	Rows	2
							Row length	50
							Row size	1,074 B
							Next Autoindex	3
							Creation	Nov 15, 2009 at 06:55 PM
							Last update	Nov 15, 2009 at 06:58 PM

Create an index on columns Go

Indexes: Space usage Row Statistics

Keyname Type Cardinality Action Field Type Usage Statements Value

Format dynamic

Collation latin1_swedish_ci

Rows 2

Row length 50

Row size 1,074 B

Next Autoindex 3

Creation Nov 15, 2009 at 06:55 PM

Last update Nov 15, 2009 at 06:58 PM

Open new phpMyAdmin window

Struktura tabele

--Create new user

GRANT ALL PRIVILEGES ON `ime_baze`.*

TO `username`@`localhost` IDENTIFIED BY `password`

WITH GRANT OPTION;

Feature	MyISAM	Memory	InnoDB	Archive	NDB
Storage limits	256TB	RAM	64TB	None	384EB
Transactions	No	No	Yes	No	Yes
Locking granularity	Table	Table	Row	Row	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	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 <small>[a]</small>	No	Yes <small>[a]</small>	Yes	No
Encrypted data <small>[a]</small>	Yes	Yes	Yes	Yes	Yes
Cluster database support	No	No	No	No	Yes
Replication support <small>[a]</small>	Yes	Yes	Yes	Yes	Yes
Foreign key support	No	No	Yes	No	No
Backup / point-in-time recovery <small>[a]</small>	Yes	Yes	Yes	Yes	Yes
Query cache support	Yes	Yes	Yes	Yes	Yes

Razlika između skladišta



Razlika između skladišta:

<http://dev.mysql.com/doc/refman/5.1/en/storage-engines.html>

<http://www.kavoir.com/2009/09/mysql-engines-innodb-vs-myisam-a-comparison-of-pros-and-cons.html>