Lebanese University
Faculty of Sciences 1

I3302 E

Web Development server side

Final Exam
17/02/2020
Duration: 120 min
Dr. Mohamad Hamze

Note: there will be **3 points** dedicated to clean code, good writing and your comments added.

Problem I (9 pts) (write only the regular expression without php code)

1. Write a regular expression to match a price. A price always starts with a dollar sign. Any amount of numbers can come before the decimal. Two numbers should always follow the decimal.

Valid:	Invalid:
$14.99	$14
$1234567.00	$134213.89money
$.90	$1.1a

2. Write a regular expression to validate an American Express card number. Amex cards have a 15 digit long number. The first number is always 3 and the second number is either a 4 or a 7. The rest of the numbers can be anything.

Valid:	Invalid:
341234567890123	541234567890123
370987654321653	a3545667857658789ad

3. Write a regular expression that matches all files that are at least one folder away and end in ".css", ".html", ".php" or ".js". You can tell if a file is at least one folder away if there is a "/" in the name.

Valid:	Invalid:
foo/bar/baz.html	index.html
css/foo.css	css/foo.txt
js/bar.js	js/bar.jss

[abc]	A single character of: a, b, or c	.	Any single character
[^abc]	Any single character except: a, b, or c	\s	Any whitespace character
[a-z]	Any single character in the range a-z	\S	Any non-whitespace character
[a-zA-Z]	Any single character in the range a-z or A-Z	\d	Any digit
^	Start of line	\D	Any non-digit
$	End of line	\w	Any word character (letter, number, underscore)
\A	Start of string	\W	Any non-word character
\z	End of string		
(...)	Capture everything enclosed	a+	One or more of a
(a|b)	a or b	a{3}	Exactly 3 of a
a?	Zero or one of a	a{3,}	3 or more of a
a*	Zero or more of a	a{3,6}	Between 3 and 6 of a

Problem II (41 pts)

It is strongly advised to define PHP functions, where necessary, to make the code clearer and less redundant, and All the functions will be created in the file “functions.php”. For MySQL use the "prepared statements".

We are interested in this exam to implement an application using PHP and MySQL that helps a librarian to monitor the student’s payments for their book rent fees. The application contains only 3 tables:

- **user**: contains all users that can rent a book. Each user is identified by a userid, username and full_name.
- **book**: a book is identified by a bookid and a title.
- **rent**: contains data about rented books. A user (userid) can rent a book (bookid) in a specific date (rdate) with (fees).

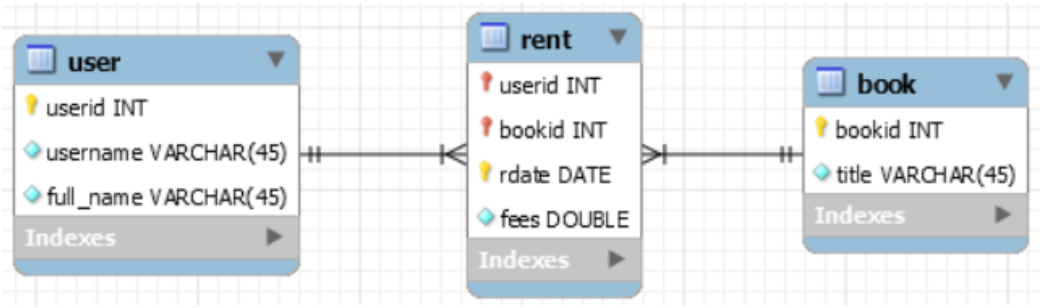

Figure 1

userid	username	full_name
1	asalim	Ahmad Salim
2	skamal	Sarah Kamal
3	ieldor	Issa Eldor

userid	bookid	rdate	fees
1	1	2019-04-15	5.5
1	1	2019-07-15	6
1	2	2019-05-12	4
2	1	2019-05-12	4.5
2	3	2019-04-20	3.2

bookid	title
1	Intro Computer
2	World Wide Web-Design
3	Visual Programming I
4	Computer Organization

Figure 2

Data backup and management is done using MySQL, installed on the same machine hosting the "localhost" web server. The database is called "library". An administrator who has a username "admin" with the password "mylib" can access this database.

Question 1. **(5pts)** Write the function *connect()* that established a connection using the server, database name, username and password listed above. It returns true if connected, otherwise it displays the corresponding error message and returns false.

Question 2. **(9pts)** Write a function listUsers() that list users who had rent books (it displays a table as shown below). The results must contain the user id, username, full name and the total of fees. The full name must be clickable, the action to take is in question 3.

User ID	Username	Full Name	Total
1	asalim	Ahmad Salim	15.5$
2	skamal	Sarah Kamal	7.7$

Question 3. **(7pts)** Write the php code that take action when clicking on any full name in question 2. On click, a new page *booksdetails.php* must open and display all books rented by the user with the corresponding full name. Example: by click on Ahmad Salim it must display:

Books rented by Ahmad Salim:		
Title	**Date**	**Fees**
Intro Computer	2019-04-15	5.5$
Intro Computer	2019-07-15	6$
World Wide Web-Design	2019-05-12	4$

Question 4. **(7pts)** Consider the following associative arrays:

$user = array(1=>array("asalim","Ahmad Salim"),2=>array("skamal","Sarah Kamal"),3=>array("ieldor","Issa Eldor"));

$book= array(1=>"Intro Computer",2=>"World Wide Web-Design",3=>"Visual Programming 1",4=>"Computer Organization");

Using these 2 associative arrays, create a form (in the page rent.php) that enables you to enter a new entry about renting a book.

Rent a Book	
User:	Ahmad Salim ▼
Book:	Intro Computer ▼
Fees:	
Rent	

Question 5. **(6pts)** In this question we admit that the database has broken down. It is assumed that the data in the database has been stored in a *library.txt* file. We assume that on the first visit to the page in question 4, a *load()* function reads the file library.txt and saves the data in a single associative array (containing $user, $book and $rent), then this array will be assigned to a **session**.

Suggest a possible representation for the associative sub-array *$rent* (with its corresponding data). ($user and $book being given in question 4).

Question 6. **(7pts)** Write question 2 using the session created in question 5.

Good luck