



CS 50 Walkthrough 7

Problem Set 7: C\$50 Finance

Marta Bralic

(slides courtesy of Keito)

Problem Set 7: C\$50 Finance

- Topics:
 - Web programming
 - PHP
 - MySQL
- You implement:
 - A stock buying/selling/portfolio viewing/history viewing website

Permissions

Read: $r = 100$ (4)

Write: $w = 010$ (2)

Execute: $x = 001$ (1)

rw_x (4 + 2 + 1 = 7)

$rw_$ (4 + 2 + 0 = 6)

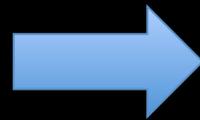
r_x (4 + 0 + 1 = 5)

$r_$ (4 + 0 + 0 = 4)

$_wx$ (0 + 2 + 1 = 3)

$_w_$ (0 + 2 + 0 = 2)

$_x$ (0 + 0 + 1 = 1)



Owner/Group/Others

rw_x rw_x rw_x = 777

r_x r_x $x_$ = 551

$rw_$ $_$ $rw_$ = 606

Permissions on the web

- **Static content** (.html, .png, .jpg, .css, .js, etc.): readable by “others”, read-write by “owner”
 - `chmod 644 name`
- **Directories** (including your home directory, `public_html`, and any directories within): executable by “others”, read-write-execute by “owner”
 - `chmod 711 name`
- **PHP scripts** (.php): read-write by “owner”
 - `chmod 600 name`

Distribution code

- index.php – homepage
- common.php – included in index.php
- stock.php – class for stock, similar to C struct
- login.php – form for logging in via POST
- login2.php –starts session
- helpers.php – lookup(), dump(), apologize()

Features you need to implement

- User registration
- Get quotes
- Maintaining a Portfolio
- Buying
- Selling
- History

SQL

- Login to database
- Three “steps” to manipulating tables
 - \$query = create query with INSERT, SELECT, UPDATE or DELETE
 - \$result = mysql_query(\$query)
 - \$row = mysql_fetch_array(\$result)
 - \$row[“field”]

register.php

- copy login.php and login2.php using cp
 - change head's title
 - change login2.php to register2.php
 - add password2 field
 - change submit button to say register
 - change link to login

register2.php (pseudocode)

- If any field is blank or password and password2 don't match
 - apologize
- Otherwise
 - \$sql = INSERT INTO users table...
 - \$result = mysql_query(\$sql);
 - if NULL
 - apologize!
 - else
 - log them in

Get Quotes!

- quote.php
 - `<form action="quote2.php" method="post">`
 - similar to login.php
- quote2.php
 - lookup
 - print

Additional Databases

- Portfolio:
 - uid (user ID of owner)
 - symbol (of stock)
 - shares (quantity)
- History
 - uid
 - bought or sold
 - shares and price
 - date and time

Buy!

- buy.php
 - `<form action="buy2.php" method="post">`
 - need stock symbol, and number of shares
- buy2.php
 - `$uid = $_SESSION["uid"];` stores current user
 - add stock to portfolio
 - INSERT like in register2.php but into portfolio table
 - charge user
 - UPDATE user table
 - log transaction in history
 - INSERT into history table

Buy Continued

- look up price of stock (like in quote)
 - lookup(\$symboltobuy); is stock “struct”
 - need to get the cost from this struct
- look up user’s cash
 - if they can’t afford it
 - apologize!
 - else
 - complete the transaction

Sell!

- Extremely similar to buy
- If user owns the stock
 - DELETE FROM portfolio...
 - refund their money
 - look up price * number of shares
 - log in history table

History

- `$history = SELECT FROM history...`
- `while ($row=mysql_fetch_array($result))`
 `print values out`

When you think you're done...

- Does your site work across browsers?
- Is your input validation sufficient (very important!)
 - Empty values
 - Negative shares
 - Fractional shares
 - etc.
- Do you check for failure (NULL) of, say, `mysql_query()`?



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