Node.js (JavaScript Runtime)

use javascript on the serverside
- ↳ Create webservers
- ↳ command line interfaces
- ↳ application backends
- ↳ More....

↳ built on Chrome's V8 JavaScript engine

Blocking / non-Blocking I/O

require = calling function from another file.

↳ creates a lightweight + efficient application due quicker runtimes

npm : file manages all the dependancies from npm.website.

Asynchronous Basics

1) initialize npm + install Express
2) Set up express Server
   - Serve up the public directory
   - Listen on port 3000
3) Create index.html and render "Chat App" to the screen
4) Test your work! Start the server + View the page in the browser.

ISPso

Python 3 MySQL Database Access
Creating Database

PHP MyAdmin
- used to manipulate MySQL data

Creating new database
New → "Test" → ~~goto~~ go to "Privileges" insert 'root', 'username' and 'host name'

for privileges, say yes to all → create 3 privileges setup

username : all 'root'
hostname : - 127.0.0.1
- ::1
- localhost

Connecting to the database:
- Created a database 'Test'
- Created a table eg. 'Employee'
- Fields in the table eg 'First Name' 'Last Name'
- User ID "Tester" password "test123" set to Access TestDB.

- Python module PyMySQL installed properly

import 'PyMySQL'

↓

an interface connecting to a MySQL database server from Python. It contains a pure-Python MySQL library.

PyMySQL is a replacement for MySQLdb.

'pip install PyMySQL'

testing initially

- Creating a db on editor with the details and execute. The table would then executed on my admin.

PHPMyAdmin - (creating a diagram)

- Select on database name
- go to 'Designer'
- Rearrange the tables

What is information_schema db?

is the database where the information about all the other databases are kept eg.
- Names of databases
- datatype of columns
- Access privileges.

NB Its a Built in virtual database with the sole purpose of providing info. about the database system itself, MySQL Server automatically populates the tables in the information_schema.

- You can query it but you cannot change its structure or modify its data
- Inspection of Metadata

Performance_Schema MySQL

- Is a feature for monitoring MySQL Server execution at low level.

Characteristics

- Implemented using the Performance_schema storage engine + performance_schema database

- Monitors servers events. eg of an event;
  - function call
  - wait for the operating system
  - Stage of an SQL statement execution such as parsing or sorting, an entire statement or group of statements.

- P.S events are specific to a given instance of the MySQL Server
- local to the Server.
- P.S storage engine collects event data using "instrumentation points" in server source code.
- Collected events are stored ~~events~~ in tables in the P.S database. tables can be queried using SELECT statements like other tables.
- Tables in PS are in-memory tables. The contents are repopulated beginning at Server startup and discarded at server shutdown.

*test data : generate . com *

to quickly generate data for testing eg name etc.

```
<? PHP
    $db_host = 'localhost'
    $db : 'Company'
    $db_username = 'root'
    $db_password = '',

    $query = "Select * From users";
    $result = $db_connection > query ($query)
    $db : connection = NULL;
```

Connecting MySQL database with Django

Project

- Connecting Databases with Django Framework

Django Serverside Framework

Step 1 Settings.py and change the 'ENGINE' + 'NAME'

Run commands: manage.py Migrate
manage.py runserver.

Step 2

- Install XAMPP an open sourced tool which provides and Apache Server + 'php MyAdmin'

- Run the Xampp Control Panel
click 'Apache' + 'MySQL' Make sure ports are correct.
opening the webpage

- add databases

N.B Only interaction with python is the Models component of Django will prepare everything.

- Modify 'settings.py'

'Pip install mysqlclient'

It will then install the django code for connecting the My SQL Database

- this will update the previous features sqlite 3 did not have.

- Migrate + runserver which will give you an update PHP admin.

JoeRyan / FinalYearProject-JR

git remote add origin git@github.com:JoeRyan1/FinalYearProject-JR.git

git push -u origin master

Version control - track changes

Secure Shell 'SSH' - securely communicating with other computers.

ssh-keygen -t rsa -b 4096 -C "..."

"No passphrase"

eval $(ssh-agent -s)

- Express
- Socket I/O → Events

- EC2

Dev Tools

Console Page

- global function in console = location.search
  gets the query string of the URL

Parse the string to get access to the individual string

'to' method - target a specific area in which both users can join a chat group

Postprocessing

testing on the console of the sent message with the time stamp.

Next objective is to convert the 'unix epic' making the time more legible.

Moment.js.com

format function

Moment( ).format('h:mm a')

(String)

(provide by the moment library loaded in * Mustache library *)

Time Stamps Node.js

generating time stamps
and transpassing them between client + Server
+ format for the users

generate timestamps

- Built in functionality (js) in the console
  - Store a 'const variable in the console'

Search for MDN documentation

```
const now = new Date()
now.toString()
```

"now.getDate()" - method to extract the date
"now.getTime()" - prints back time stamp of the number of milliseconds January 1970!
"Unix Epic?"

XAMPP

used for the compilation of free Software.

- can be used with a single executable file quickly & easily.

Control Panel

config: config XAMPP with individual components

Testing your XAMPP installation

C drive

↳ htdocs → 'Explorer' button

for standard installations (dd) the web server have presisting data that did's in configuration

* The directory helps with configuration (htdocs)

Apache

- free source web server software
  > can access files stored on a physical server and use them for different purposes.
  > acts as the 'middleman' between Server and client.
  - it pulls content from the server on each user request and delivers it to the web.
  - They turn them to static HTML files in the browser of web users.

Web Server → responsible for the proper server - client communication

(other server apps - Nginx)

CSS Materialize CSS.com

SASS → Metalanguage in addition to CSS used to describe the style of a document clearly and structurally with greater power.

- changing the default colours, getting the variables set
  - Using a SASS compiler to compile to CSS
  (scaled) application.

- PHP File contains HTML, CSS, JavaScript + PHP code.
  ↳ generate dynamic page content
  - can read, write, open, delete, close files on the server.
- Collect data (form data)
- can add, delete Modify data in database
- Control user access
- Can encrypt data.