



Lecture 1 - Overview

Databases and Interfaces

COMP1048

Matthew Pike & Yuan Yao

Welcome!

Module Conveners

- Dr Matthew Pike
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- Email:
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- Office Hours:
Mondays (12:00-13:00, 17:00-18:00)



Module Conveners

- Dr Yuan Yao
- Office: PMB-438
- Email:
yuan.yao@nottingham.edu.cn
- Office Hours:
Mondays (17:00-18:00)
Tuesdays (15:00-16:00)



Setting Expectations.

What is DBI all about?

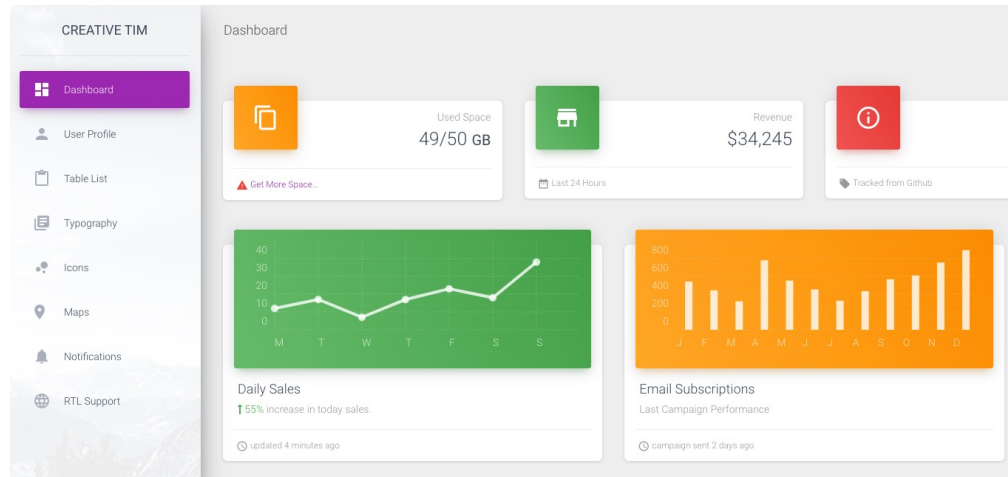


Class Activity: DBI Mind Map



Module Content Overview

- DBI will cover:
 - Frontend Web Technologies
 - HTML, CSS & (a little) JavaScript
 - Backend Web Technologies
 - Web-Application Frameworks (WAF) via Python & Flask
 - Database Technologies
 - SQL via SQLite
- More importantly, we'll cover the interaction between these technologies
 - The Interface(s) to our Database(s)



Common Challenges (Complaints?)

- “There are too many programming languages and technologies to learn in DBI”
 - I don’t disagree!
 - Unfortunately, this is the nature of Web development – complex interaction between many different technologies
 - One technology is limited without the presence of the other(s)
- “The module work is too difficult” & “The module work is too easy”
 - You enter Qualifying Year (QY) with different levels of development experience
 - Whether you find it too easy or too difficult, I encourage you to explore, create and experiment

Module Organization

Assessment

- 50% - Written Examination
 - Revision lecture in Week 12
 - Past Papers are available on Moodle. Solutions will **NOT** be provided
- 50% - Coursework
 - 25% Coursework 1 - Continuous Weekly Assessment & Quiz
 - 10% - Weekly lab tasks. Submissions must demonstrate reasonable Effort
 - 15% - Midsemester Quiz (on database content)
 - 25% Coursework 2 - Web-System Implementation
 - Database + Backend + Frontend

Communication

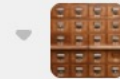
- Moodle
 - All teaching activities will be conducted via Moodle
 - Weekly Lab Task submissions
 - Coursework Submissions
 - Quizzes
- Microsoft Teams
 - Questions
 - Lecture Livestreams
 - Informal discussions and article sharing



Databases and Interfaces (COMP1048 UNNC) (AUC1 22-23)



[Announcements](#)



COMP1048: DBI 2022-2023



General

Labs

Lectures

Feedback - We take this **really** seriously.

- Continuous Feedback System
 - We really do want your feedback!
 - Linked to on Moodle

Feedback

Your voice matters.

Your feedback is crucial to ensuring that we can continually improve and develop the DBI module.

Please use this [form](#) (QR code below), at any time during the semester to provide feedback.



Your feedback is greatly appreciated. Linked below is a document outlining the feedback we have received so far. The document is intended to provide some transparency over decision-making involved in running this module. Additionally, we hope that this document reinforces that your feedback is taken seriously. This document will be regularly updated with response to new feedback when it is received.

- Current Feedback: DBI Feedback and Response (2022-2023) – [Awaiting first feedback item]
- Historic Feedback: [DBI Feedback and Response \(2021-2022\)](#) (No longer updated)

Attendance

On-campus students:

- Attend Lectures in-person
- Attend Labs, in-person
 - Attendance is recorded automatically at the beginning of lecture
 - We do not have control over the attendance system!

Remote-Learning students:

- Lectures and Labs via MS Teams

All students

- Please attend your timetabled lab
- Please do not ask the teaching staff if you can change group – we do not create the groups! This is done by the timetabling team.

Remote Learning Students

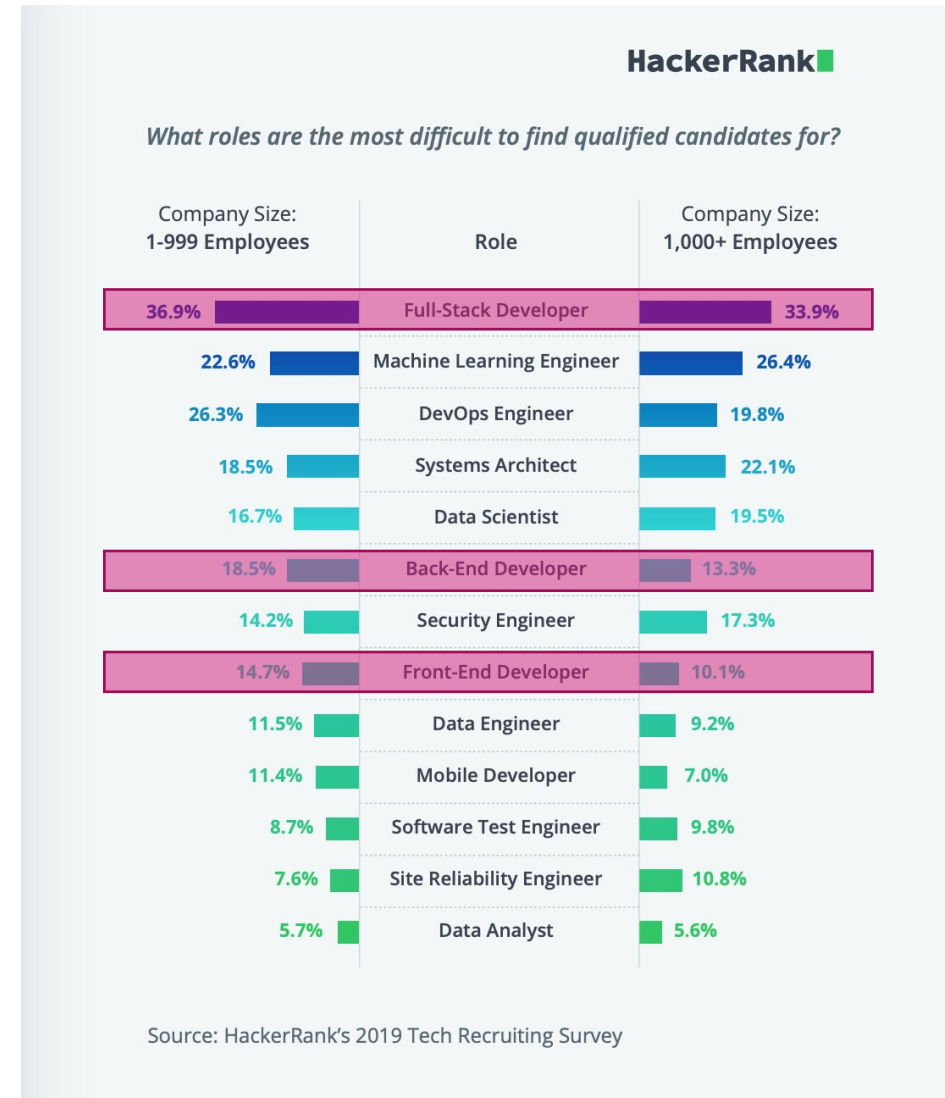
- If you're joining us remotely – welcome!
- In general, we will aim to reduce/remove any “distance”, as best as possible
- Practical arrangements:
 - Labs & Lectures – Livestream via MS Teams. These will be recorded.
 - Tech Setup – No differences from in-person students
- Problems:
 - Contact us directly
 - Use the feedback systems!

Why is DBI important?



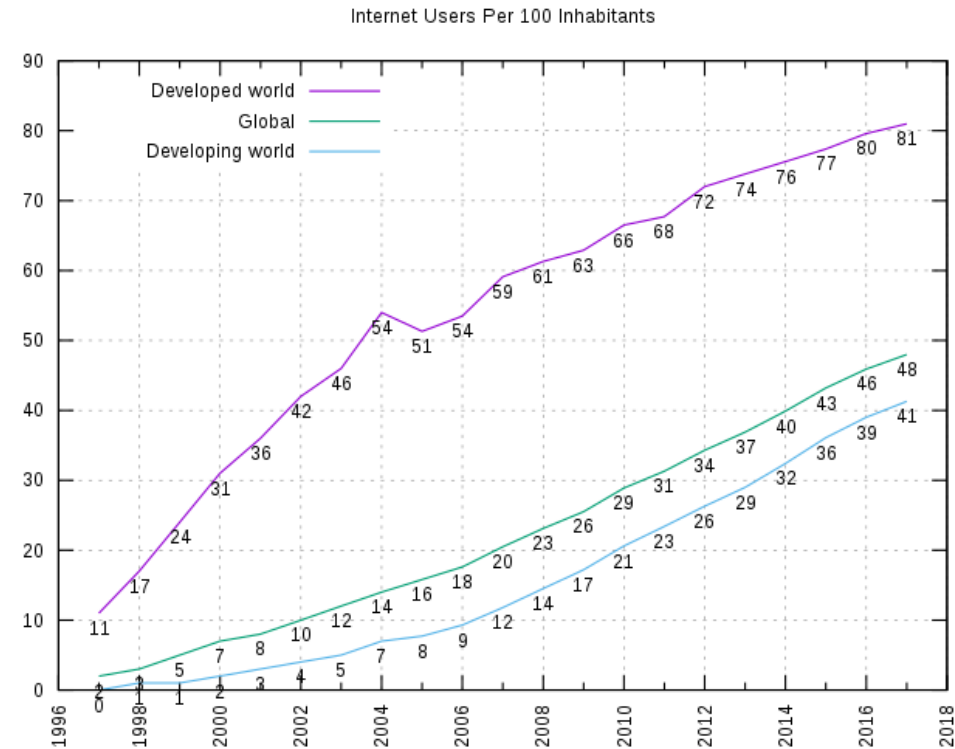
Why is DBI important?

- Globally usage of the web is continually increasing
 - Especially in developing nations
- Skills are undersupplied
- Web technologies can be used to develop desktop and mobile apps
 - [Electron](#)
 - [Tauri](#)



World Population and Internet Access

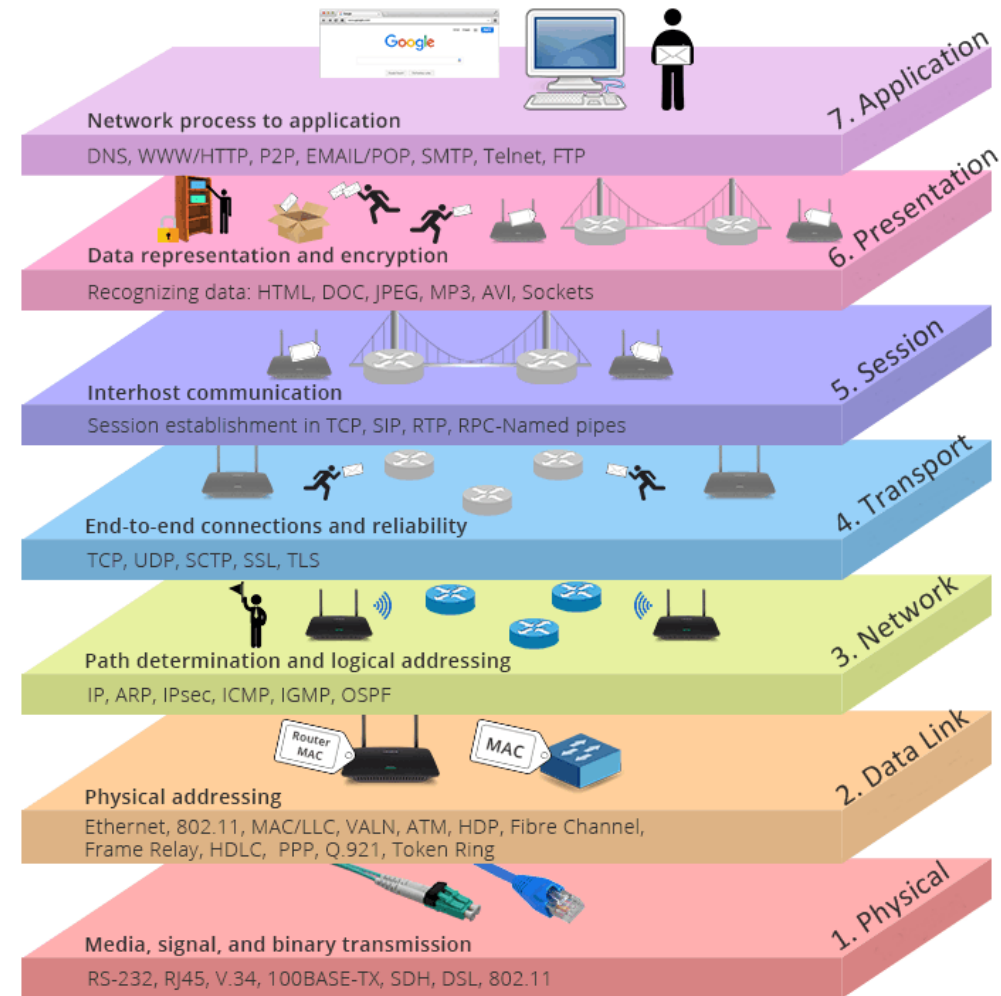
- As of June 2018, 55.1% of the world's population has internet access.
- In 1960, the purposes were communication, program sharing, and remote access.
- Today, additional usages include social networking, shopping, searching for information.



https://en.wikipedia.org/wiki/Global_Internet_usage

TCP/IP

- Transmission Control Protocol/Internet Protocol allows devices on the Internet to communicate with each other.
- Internet Protocol (IP) addresses are used to uniquely identify all devices connected to the Internet.
- Which level of the OSI model will this module primarily operate on?
- Note - The OSI model will be taught in the SYS module



Domain Name

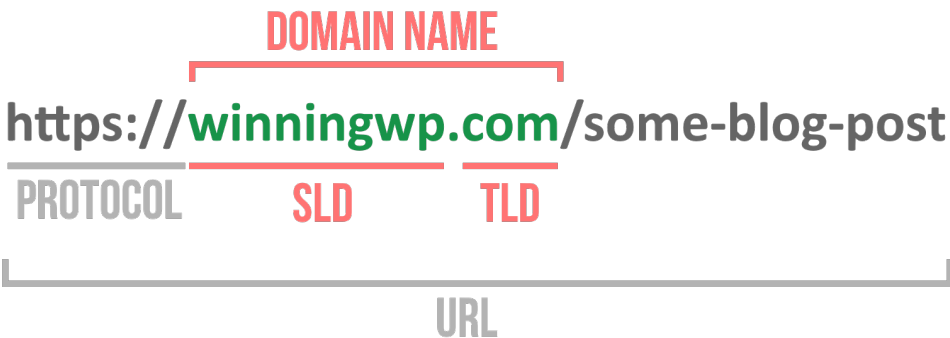
- Begins with the name of the host machine, followed by progressively larger collections of machines i.e., domains.
- Easier to remember than IP addresses (for human).

DOMAIN NAME

https://winningwp.com/some-blog-post

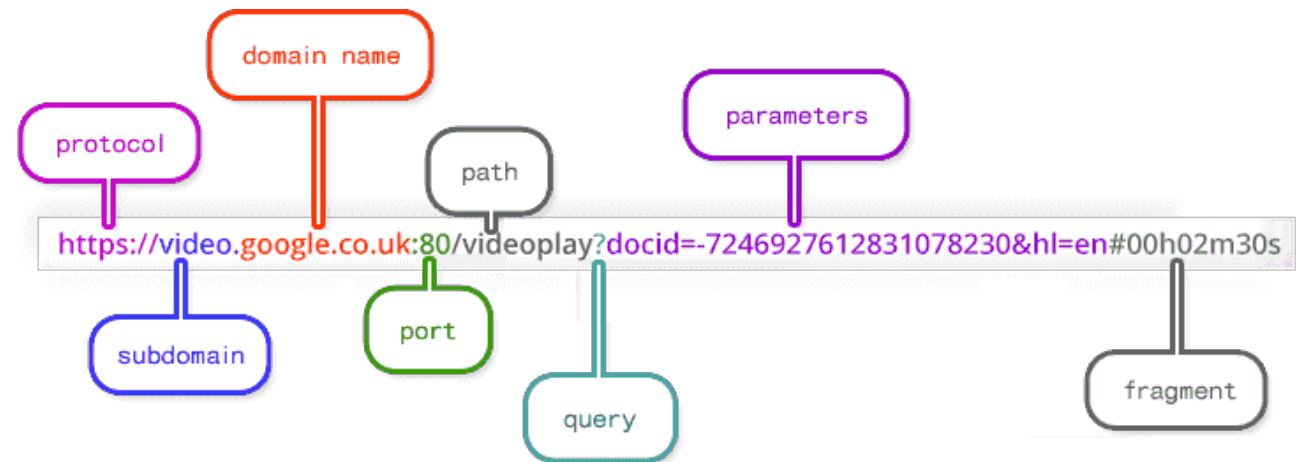
PROTOCOL **SLD** **TLD**

URL

A diagram illustrating the components of a URL. The URL 'https://winningwp.com/some-blog-post' is shown. Above it, a red bracket spans 'winningwp.com' with the label 'DOMAIN NAME' in red. Below the URL, a red bracket spans 'winningwp.com' with 'SLD' in red below it, and another red bracket spans '.com' with 'TLD' in red below it. A grey bracket spans the entire URL 'https://winningwp.com/some-blog-post' with the label 'URL' in grey below it. The word 'PROTOCOL' is in grey below 'https://'. The background features a green curved shape at the top right and a dark blue curved shape at the bottom right.

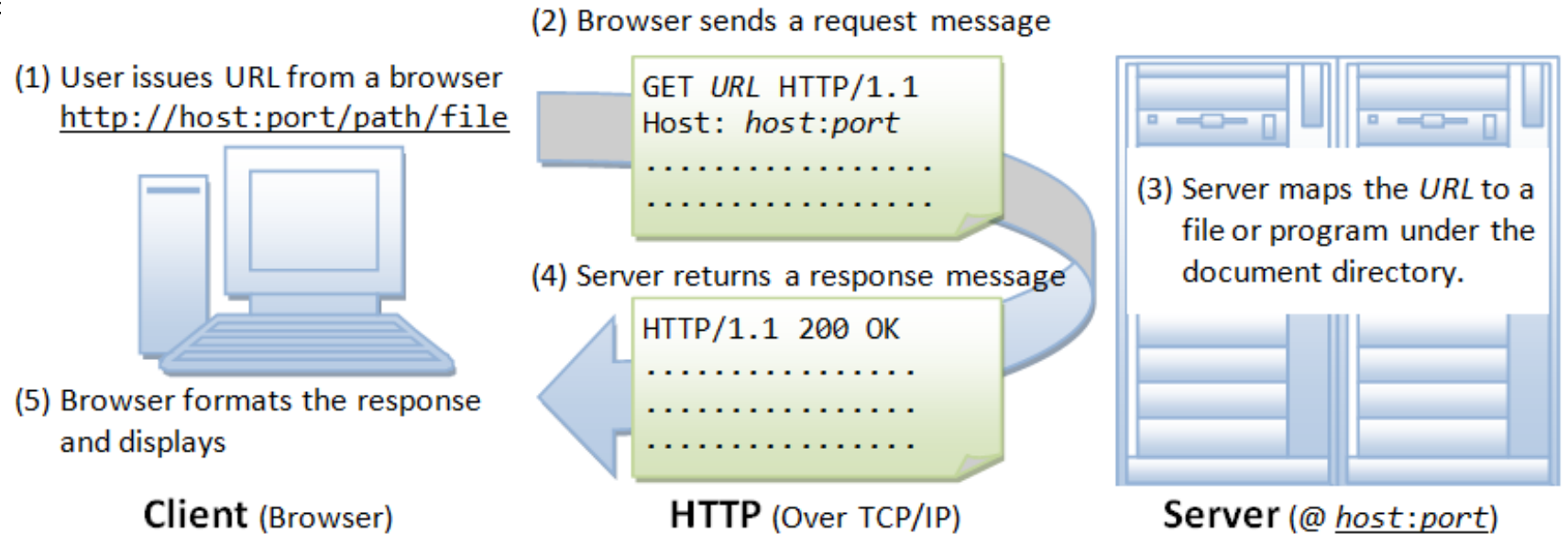
Uniform Resource Locators (URL)

- URLs are a path to, or location of, a resource on the Internet.
- URL format is:
scheme:object-address
- The scheme is often communication protocol, e.g., HTTP, FTP, news
- The path to the document for the HTTP protocol is similar to a path to a file or directory in the file system of an operating system.
 - URL may not include all directories i.e., partial path




Hypertext Transfer Protocol

- HTTP consists of: request and response



Conclusions

- Devices connected on the Internet rely on TCP/IP protocol to communicate.
 - IP addresses are four-part numbers xxx.xxx.xxx.xxx
 - DNS translates IP addresses to domain names for human.
 - URN/URI identify resources on the Internet, URL identify paths or locations of the resources.
 - HTTP is a standard protocol for web communication.
 - Commonly used HTTP requests are GET and POST.
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We need a volunteer!

- We need a responsible and well-organized individual to record the DBI (& other) lectures
- If you're interested, please contact Jane Zhao our IT Officer
jane.zhao@nottingham.edu.cn
- This will be treated as an internship, and you will be paid.



Feedforward

- <https://forms.office.com/r/WjTUR9NVdf>

