



COMPUTER ENGINEERING
CHIANG MAI UNIVERSITY

Full Stack Development

CPE405 - Advanced Computer Engineering Technology

Dome Potikanond
Navadon Khunlertgit
Banana Software co., Ltd

Computer Engineering, Chiang Mai University

Background



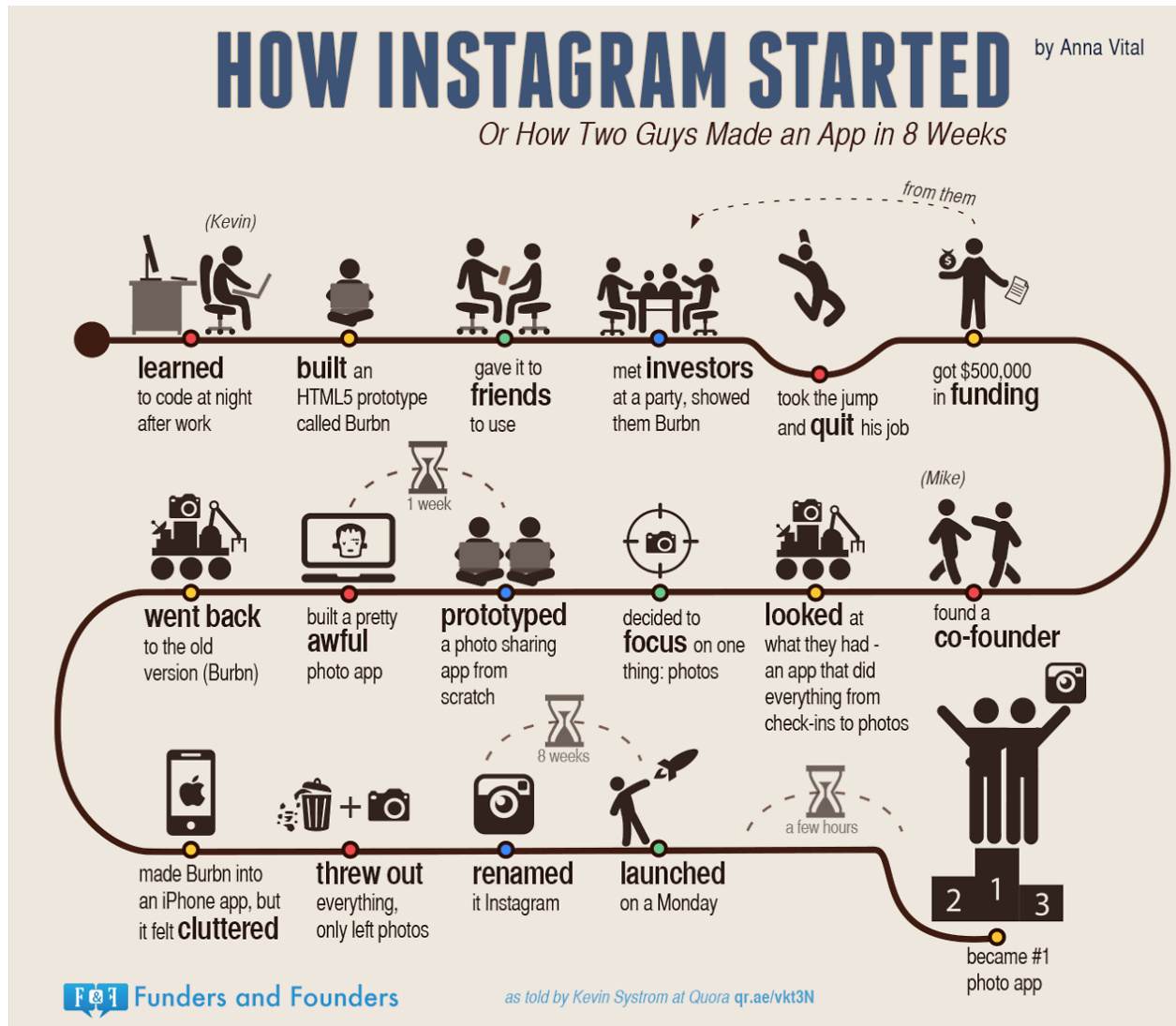
Background



วิกฤติ Programmer

สัญญาณของประเทศที่
ไร้ฝัน ไร้อนาคต

Background



Now what???

IT'S TIME

to take action

Find Your Passion

Course Objectives

- Making a fresh start in modern software development
- Really know and understand current technology
- Practice with real-world application
- Preparing for life-long learning

Course Theme

■ “Full-Stack Development”

- Someone who is able to work on both the **front-end** and **back-end** portion of an application
- One who are familiar with the entire stack know how to make life easier for those around them



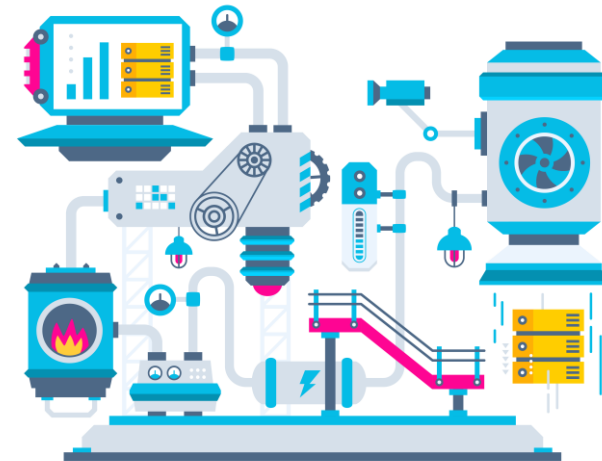
Front-end

■ Front-end

- The part of an application the user will see and interact with

■ Back-end:

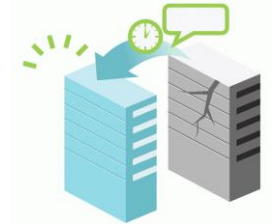
- The part of the application that handles the logic, database interaction, user authentication, server configuration, ...



Layer of Full-Stack Development

■ Server, Network, and Hosting Environment

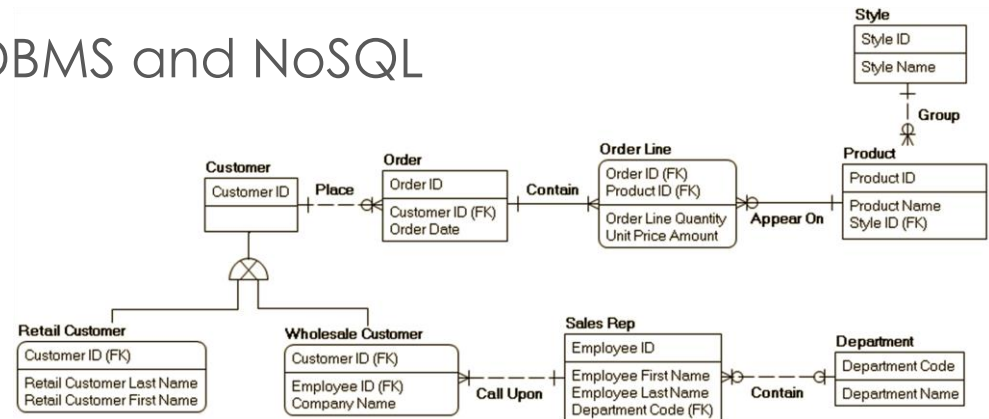
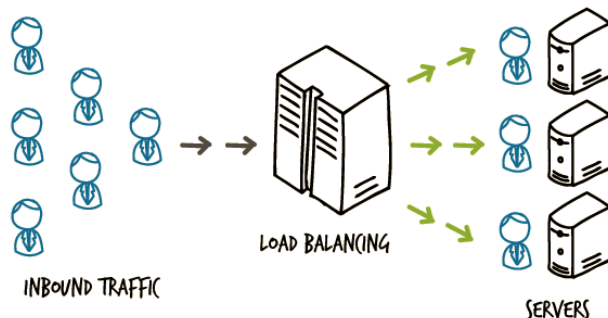
- Appropriate use of file system, cloud, network resources
- Understanding of data redundancy and availability
- How does the application scale



{ name: mongo, type: DB }

■ Data Modeling

- Reasonably normalized relational model
- Understanding trade-off RDBMS and NoSQL



Layer of Full-Stack Development

■ Business Logic

- Solid object oriented skills are need here
- Frameworks are needed here as well

■ API layer / Action Layer / MVC

- How the outside world operates against the logic and model
- Ability to provide clear, consistent and simple to use interface



Layer of Full-Stack Development

■ User Interface

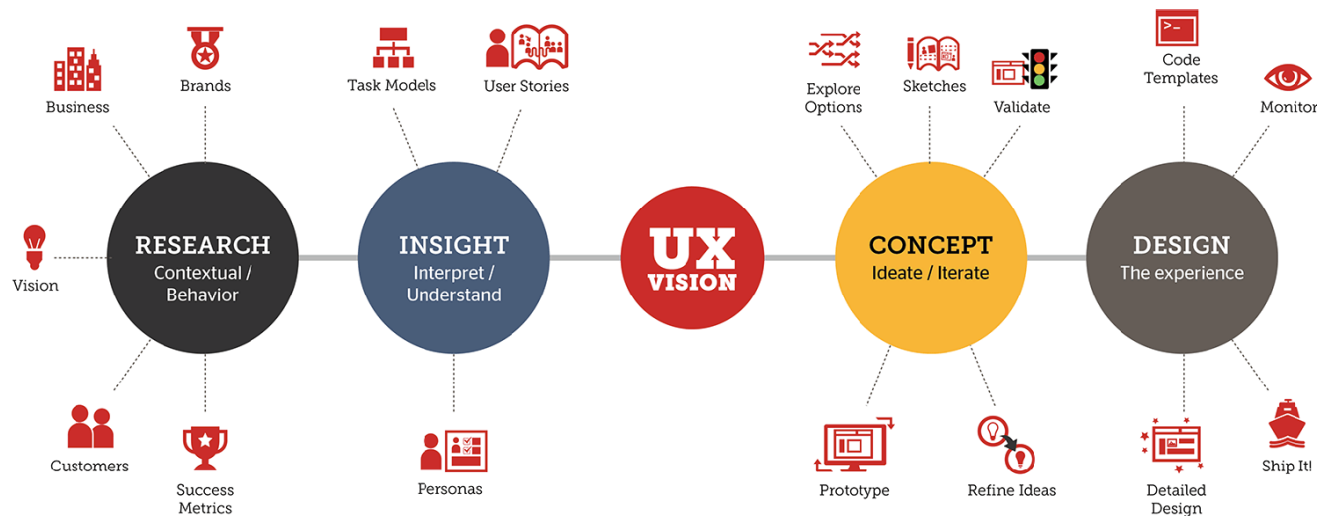
- Understand how to create readable layout
- Need help from artists and graphic designer
- Mastery of HTML5/CSS and JavaScript
- Mobile development



Layer of Full-Stack Development

■ User Experience

- Appreciate that users just want things work
- Get 8 clicks and 3 steps down to just one click
- Able to write useful (and understandable) error messages



Technology

■ Three technology tracks

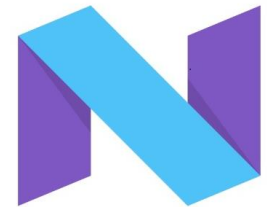
■ **PHP Framework:** Phalcon, Slim

■ **Javascript Framework:** Vue.js, Node.js

■ **Mobile Development:** Android (and more Android)



Vue.js
MVVM Made Simple



Course Organization

- **Before Midterm** : Front-end development
 - Track#1 – **Phalcon framework** (Banana)
 - Track#2 – **Basic Android development** (Navadon)
 - Track#3 – **Vue.js framework** (Dome)
- **After Midterm** : API development + Deployment
 - Track#1 – **Slim framework** (Banana)
 - Track#2 – **Advanced mobile development** (Navadon)
 - Track#3 – **Node.js and friends** (Dome)
- You can switch dev. Track after the midterm !!!

Course Organization

■ Common Topics (midterm & Final)

- Front-end Technology
- UI/UX Concept
- API development concept
- Deployment technology



Real-World Application

- No more **localhost**
 - XAMP, WAMP, ...
- No more **simple test data**
 - *Testuser1, test_company, test..., "sodmfpiema;sd"*
- **Security** is important
- Minimum requirement



GitHub
Student Developer Pack



Course Assessment

Midterm 15%

Final 15%

Labs 20%

Project 50%

Group 20%

Individual 20%

Progress 10%

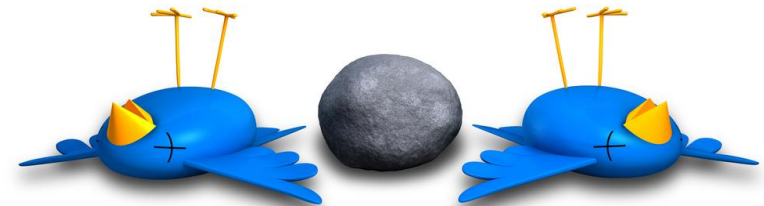
Bonus max 15%

Capstone Projects



Capstone Projects

- Essentially, it could be your “**Graduation Project**”
 - Could get the **maximum bonus of 15%**
 - You will have something to show at **project survey presentation** by the end of semester
- **CPE MIS Projects** (simulated real-world)
 - **Senior** and **CPE405 project**, +bonus
- **Banana Projects** (industry problems)
 - **Senior** and **CPE405 project**, +bonus
 - +Prize, +Part time



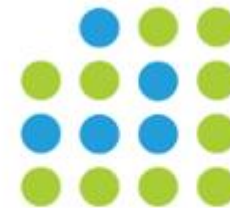
CPE Projects

▣ Student MIS – undergrad & grad*

- ▣ Students data, projects, achievements, stats, report

▣ Management MIS

- ▣ Equipment
- ▣ Financial & Plans
- ▣ Coop*
- ▣ Resource Reservation*
- ▣ Course Schedule Planner
- ▣ Document Management*
- ▣ Alumni v.2



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Banana Projects

■ BiAc - Corporate Workflow

- Billing, people, payroll, Zoho:S3 API, ...



■ School SAP

- Grader, Time Attendance, Driver,
- Payment, QR, NFC, ...



■ U v.1

- Schedule, assistance, alert, helper
- L&F, Bus Adv., ride sharing, ...



Q&A