Introduction to the Course



Building Modern Web Applications - VSP2023

Karthik Pattabiraman Kumseok Jung Mohsen Salehi

What is this course about?

- 1. What is this course about?
- 2. Logistics
- 3. Policies
- 4. Grading
- 5. Other



What is this course about?

- Core principles behind building modern web applications
- Abstractions and design principles
- Application of core web technologies such as HTML, CSS, JavaScript, Node.js to the above



What is it NOT about?

Learning of specific technologies

- These will get outdated by the time you finish
- Fast changing field, so new technologies continuously appear and disappear.
- Can learn any technology if you understand the principles and concepts behind web development

Frameworks or libraries (e.g., jQuery)

- These are built on the principles and concepts
- Too many to cover in a reasonable time



Bottom line

You will understand the principles behind web application development



- Not simply copy-paste code from websites to string together a web application
- You will understand why technologies are the way they are, rather than accept it as a statement of fact, and perhaps change them if needed
- It enables you to design novel techniques and technologies in the web application space
- If you put in the effort, this course will be really fun! :-)

Logistics

1. What is this course about?



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Instructor: Karthik Pattabiraman

Karthik Pattabiraman (<u>karthikp@ece.ubc.ca</u>)

- Professor at UBC (joined 2010)
 - PhD from University of Illinois Urbana-Champaign
 - Detour via Microsoft Research in 2009
- Research
 - Web applications' reliability and security
 - Error resilient applications
 - Internet of Things (IoT) security
 - Machine Learning Dependability
- Teaching this course for the fifth time (since 2017)



TA: Kumseok Jung

Kumseok Jung (<u>kumseok@ece.ubc.ca</u>)

- PhD Student at UBC
 - o BSc & MASc from University of British Columbia



- Internet of Things (IoT)
- Cloud/Edge Computing
- Software Engineering
- Distributed Systems



TA: Mohsen Salehi

Mohsen Salehi (msalehi@ece.ubc.ca)

- PhD Student at UBC
 - MASc from Sharif University of Technology



- Security in:
- Internet of Things (IoT)
- Real-time Embedded devices



Logistics - Lectures

Lectures delivered by the instructor in class



- Will consist of a mix of teaching (lecturing) sessions mixed with in-class activities
 - Please bring your laptops fully charged with you to class.
 - Contact us if you do not have a laptop or similar device
 - You will work in teams of three
 - Participation in activities is important
- Lecture notes will be distributed ahead of time
 - No course textbook required; However, you should keep your own notes

Logistics - Software

Any OS: Windows, Mac OSX, or Linux



- Your favorite web browser + built-in web dev tools
 - Firefox
 - Chrome
 - Edge
- The text editor/IDE of your choice :-)
 - VScode highly recommended
 - Sublime
 - Atom
 - Notepad++

Logistics - Interactions

Github



github.com/ubc-vsp23/classroom



- Main hub to find all the links
- Lecture slides, class activities, assignments

Do not distribute

Assignment submissions

Slack



Ask and answer questions - bonus points for participation

No Email (unless it's private)

Logistics - Resources

- There's no textbook for the course
 - Lectures will cover all the material
 - Augment with online resources as needed
 - Attendance expected at all lectures
- Assignments will test you on material not necessarily covered in the lectures
 - You're free to use publicly available online resources on the web, as long as you cite them



Policies

- 1. What is this course about?
- 2. Logistics
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Policies

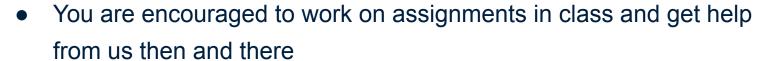
- You are responsible for all material you hand in
 - Review UBC's policies for academic dishonesty



- Plagiarism of any kind will NOT be tolerated
 - Automatically result in you getting an F
 - Lack of knowledge of policies is not a valid excuse
- No collaboration allowed on assignments (except with your partners more later)

Policies

- All material in the exam will be from the lectures covered in class.
 - Will NOT test you on material NOT in the lecture notes!
 - Missing a lecture means that you may miss out
 - o Encouraged to ask questions in class and online



- Office hours will not typically be held outside class
- o If really needed, we can schedule special sessions with you



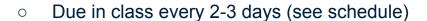
Grading

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Grading

- Assignments (60%)
 - 4 assignments counting for 15% each



- Done in teams of 3 (form teams by today)
- Encouraged to work during class on laptops
- Use Github to commit code (do this periodically)
- No late assignments (no exceptions)



Grading

- Final Exam (40%)
 - To be held on Aug 9th in class



- Must be done individually (NO collaboration)
- Closed notes and Closed book part consisting of multiple choice questions (15%)
- Open notes and Open book part consisting of 5 programming problems (25%) –
 please bring your laptop for this

Exam will be auto-graded with manual checking.

Assignments - Git

Open source distributed version control system



- We will be using Git for version control and GitHub for hosting
- Each group will receive a private GitHub repository

Assignments - Git

Assignment submissions will take place through GitHub



- Create an assignment branch (i.e., assignment-1, assignment-2, assignment-3, assignment-4) by the due date (we will give more details on this)
 - No other means to submit an assignment will be accepted!
- No late commits will be accepted (unless with instructor permission).
 - Please push your latest changes to the appropriate branch before 11:59:59 PM on the due date!

Class Participation

- To learn and benefit from this class, all of you need to participate
 - Asking and answering questions in class and on Slack
 - Participating in in-class exercises
 - Does NOT mean simply showing up in class

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We will award bonus points for class participation



Other

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Other thoughts

Hope you have fun and learn too



- It's your responsibility to keep up in class
- If you're struggling, let us know early so we can help to the extent possible – or it may be too late
- Feel free to give us feedback and suggestions for improvement etc. –
 these will NOT impact your grade in any way

TODO for Today

 Find a partner to do the assignments with (teams of 3) and receive your Github repository.



- Let us know about your team by end of the first class. Use the following google form to submit your group information:
 - https://forms.gle/GBJfRiSKEn1jXa7UA
- We will then assign a GitHub repository for your team, and both members will be added as collaborators. Make sure you can work with it from your laptops

TODO for Today - Git Demo

- 1. Clone repository
- 2. Commiting changes
- 3. Pushing/pulling changes from repository
- 4. Branching

<u>Useful Git Commands</u>

git clone git pull origin master git push origin master

Creating Branches

git branch assignment-X
git checkout
assignment-X
git push -u origin
assignment-X

git checkout master

git branch

git branch -r



TODO for Today

- Node.js Setup
- Git setup



Extra Resources on JavaScript

If you want to go beyond the VSP course:



- 1. "Eloquent JavaScript: A Modern Introduction to Programming" by Marijn Haverbeke
- 2. "JavaScript: The Good Parts" by Douglas Crockford (where JavaScript quiz is from)
- 3. "Programming JavaScript Applications: Robust Web Architecture with Node, HTML5, and Moderns JS Libraries" by Eric Elliott
- "Effective JavaScript: 68 Specific Ways to Harness the Power of JavaScript" David Herman
- 5. "JavaScript: The Definitive Guide" by David Flanagan
- 6. "You Don't Know JS" by Kyle Simpson

Not required for this VSP course!