IERG4210 WEB PROGRAMMING AND SECURITY (2015 SPRING)
ASSIGNMENT MARKING GUIDELINES

REVISION HISTORY

v1.0	Jan 16	Created this document; Released Phase 1 Requirements
v2.0	Jan 28	Released Phase 2 Requirements

GENERAL GUIDELINES

The assignment is designed to let students practice what they have learned in the course. Students must be aware of web application security throughout the web development. The whole assignment is split into 7 phases, leading all the way to a fast, secure, and user-friendly shopping website upon completion. Students can take a real-world website, walmart.com, as a reference. In the assignment, students are expected to understand and apply proper security design principles and programming skills, regardless of what libraries (e.g., jQuery) the students would like to use. The marking checklist in the next page is written in a minimal-viable and result-oriented basis, and thus students can unleash their creativity in building more features. For detailed guidance, students should refer to both tutorial and lecture notes.

SUBMISSION POLICY

Each student is required to maintain their source code and any resources (e.g., images, css and js files) in an assigned private repository **shop[01-80]** at github.com/ierg4210. While latest changes are always maintained in the *master* branch, students are required to branch out a snapshot titled as **phase[1-7]** from its *master* for each phase. Hence, TAs will pull from the particular branch and only take that into account for inspection. Technical details can be found in Tutorial 2.

Each phase is associated with a firm submission deadline.

- *Early Submission Incentive* – For every 48-hour advanced submission in one phase, the deadline for phase 5 or 6 can be extended by 24-hour, and no part thereof is accepted. For instance, submitting 100 hours before the phase 1 deadline will gain an extension of 48 hours for either phase 5 or 6 deadline of your choice.
- *Late Submission Penalty* – Late submission will incur deduction of $(10\%)^{1/n}$ from your scored points, where n is the round-up number of days delayed (e.g. 9 hrs late → 10%, 25 hrs late → ~31.6%, 49 hrs late → ~46.5%, and so forth).
- *Interim Demonstration* – Students' submissions will be randomly sampled by TAs for inspection. If a student is found unable to complete 70% of the requirements in any single phase from 1 to 5, s/he is required to see TA, and will be arranged to give an interim demonstration (time and venue TBD). If the student fails to complete 70% of the requirements by the time his/her interim demonstration is given, the case will be escalated to the department for resolution. Students capable of meeting deadlines and 70% of the requirements can safely ignore this policy.
- *Final Demonstration* – Students will sign up for a timeslot to demonstrate their websites to a marker, who will then grade it according to the checklist. The marker will further evaluate the student's understanding with two questions.

HONESTY IN ACADEMIC WORK

CUHK places very high importance on honesty in academic work submitted by students, and adopts a policy of *zero tolerance* on cheating in examinations and plagiarism. Students are NOT allowed to submit anything that are plagiarised. Therefore, we treat every assignment our students submit as original except for source material explicitly acknowledged. We trust that students acknowledge and are aware of University policy and regulations on honesty in academic work, and of the disciplinary guidelines and procedures applicable to breaches of such policy and regulations, as contained in the website http://www.cuhk.edu.hk/policy/academichonesty/.

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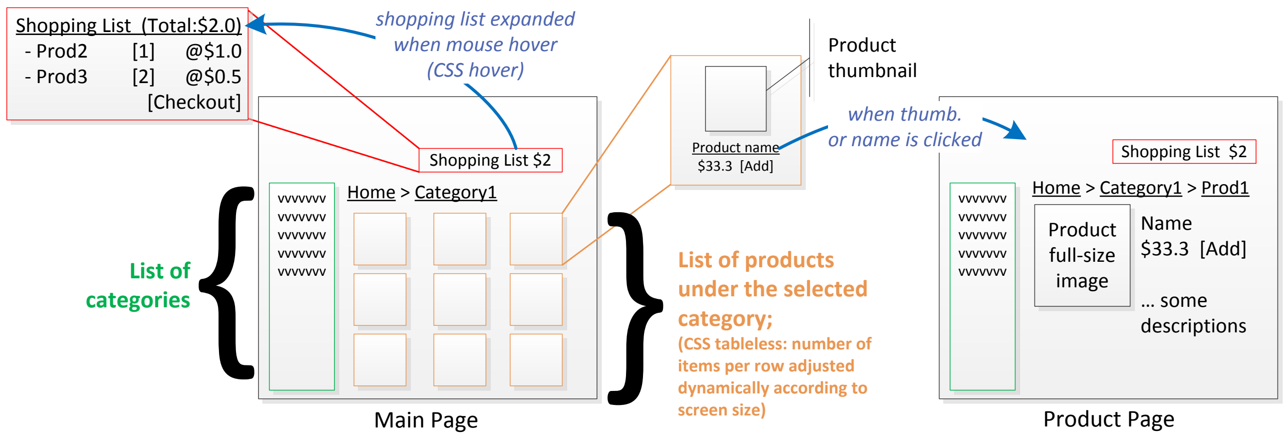
PHASE 1: LOOK AND FEEL (DEADLINE: JAN 26, 2015, 5PM) (SUBTOTAL: 12%)

A designer has drafted a layout as follows, which outlines some fundamental features of a shopping website. In this phase, you will create a mock-up by hardcoding the website with **dummy categories and products**.



1. HTML: Make use of semantic HTML <ins>throughout the whole assign.</ins> _____ / 1%
   - <header>, <nav>, <footer>, <article>, <section>, <ul>, <li>
2. CSS: Clean separation of HTML, CSS and JS code and files <ins>throughout the whole assign.</ins> _____ / 2%
   - No inline CSS and JS are allowed
   - No styling in HTML, e.g. <center>, <div align="center">, etc
   - Tolerance: < 5 exceptions
3. *Main page* demonstrates the use of "CSS tableless" *product list* _____ / 2%
   - Each product has <ins>at least</ins> its own thumbnail, name, price and *addToCart* button
   - When the thumbnail or name is clicked, redirect to the corresponding product page
4. *Main page* demonstrates the use of "CSS hover" *shopping list* _____ / 2%
   - When displayed, it will cover any elements behind
   - Input boxes are used for inputting quantity of each selected product
   - A checkout button is used to submit the list to Paypal
   - The shopping list is displayed in both main and product pages
5. *Product page* provides product details _____ / 2%
   - To show a full-size or bigger image, name, description, price, and *addToCart* button
6. Both main and product pages should include a navigation menu _____ / 2%
   - e.g., Home or <ins>Home</ins> > Category1 or <ins>Home</ins> > <ins>Category1</ins> > Product1
   - Those underscored are hyperlinks that redirect users to an upper hierarchy
7. Branch out **phase1** in your repository, where TAs can checkout for inspection _____ / 1%

PHASE 2A: TESTING ENVIRONMENT SETUP (DEADLINE: FEB 4, 2015, 5PM) (SUBTOTAL: 11%)

In this phase, you are required to setup a local development environment and also a remote deployment environment. Some guidance will be given in tutorial 4.

1. Create a web application and server using Node.js
   - Initialize a new node project, and install the following npm packages _____ / 1%
     - as dependency: `express` and `express-handlebars`
     - as development dependency: `supervisor`
   - Hosting your server locally _____ / 1%
     - Use supervisor to run your app locally to avoid manual restarting upon code changes

    - Server accessible at http://localhost[:3000] or any port number
  - Serve static files using the express.static middleware _____ / 2%
    http://expressjs.com/guide/using-middleware.html#middleware.built-in
    - Static image files accessible through http://localhost[:3000]/**images/**
    - Static JavaScript files accessible through http://localhost[:3000]/**lib/**
    - Static CSS files accessible through http://localhost[:3000]/**css/**
  - Serve dynamic pages with a *server-side* JS templating engine _____ / 3%
    - Based on the simple basic example of Express Handlebars (sample code)
      https://www.npmjs.com/package/express-handlebars#basic-usage
      https://github.com/ericf/express-handlebars/tree/master/examples/basic
      - Move the common UI code from your two HTML into a main template layout
      - Hence, core contents of your pages will be combined with the main template
    - The index page accessible through http://localhost[:3000]/
    - The product page accessible through http://localhost[:3000]/**product**

2. Deploy your code to Amazon Elastic Beanstalk (EB) _____ / 4%
   - Create a EB environment for Node.js (application name: shopXX-ierg4210)
   - Deploy your application to the EB environment#
   - Remotely accessible through the given application URL
   - Branch out **phase2** in your repository, where TAs can checkout for inspection
     - `.gitignore` configured to exclude committing any installed node and virtualenv packages

This will incur charges:
(1) Apply the free US$100 AWS credit code, to be distributed by TA
(2) After the first deployment, configure to use single instance to save cost during development
(3) Terminate any unused resources (during/after this course). You're responsible for charges beyond free quota

FINAL Q&A (SUBTOTAL: -75%)

- Random Question 1: Code-related ____________%
- Random Question 2: Conceptual or Code-related ____________%

SID: ________________________________ TOTAL: _______ / 100%

MARKER RESPONSIBLE: ______________