

Web Application Development

Objectives of the course

- Obtain knowledge of the basic principles for the web-development
- Practice by developing several web applications

In details

- Basic frontend (html, css, js)
- Basic backend (Python/Go, MongoDB, Redis, ...)
- Basic ±DevOps (Docker, docker-compose, deployment)
- Basic WebSec (OWASP Top10, web hardening)

Syllabus

1. Frontend fundamentals (HTML, CSS, JS), GitHub flow, GitHub pages
2. Backend fundamentals (Python, flask, web-server)
3. Teamwork; projects; GET/POST, HTTP, Authentication
4. Databases and cache (MySQL, MongoDB, Redis)
5. Production deployment and testing
6. Docker and docker-compose, CI/CD pipelines
7. Web application security
8. Security audit, pentesting and presentation of projects

Prerequisites

- Any programming language (course will be on Python mostly, but you can use NodeJS, Go, ...)
- Basic level of HTML+CSS

Assessments

- Project (50%)
- Mini-projects (tasks) (50%)
- Non-zero number of commits, pull-requests, code reviews

One more thing ...



Quiz time

<https://quiz.itmo.xyz/>

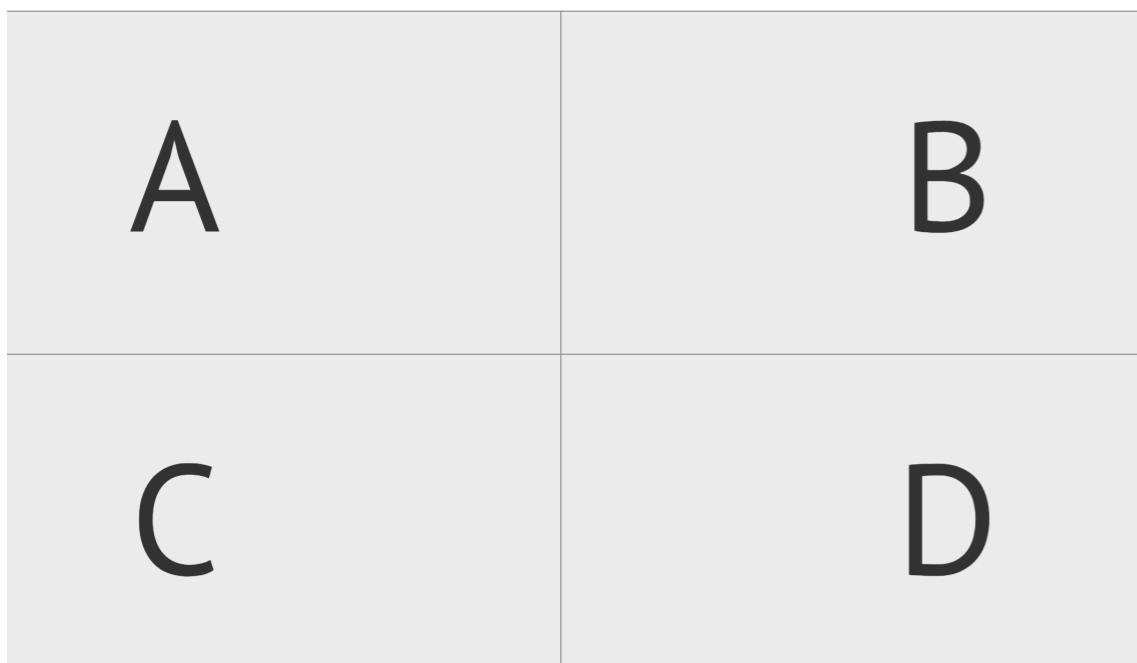
What HTML tag should go first in a document?

A. <html>

B. <head>

C. <!DOCTYPE>

D. <the-boss-tag>



x2

GitHub flow

THIS IS GIT. IT TRACKS COLLABORATIVE WORK
ON PROJECTS THROUGH A BEAUTIFUL
DISTRIBUTED GRAPH THEORY TREE MODEL.

COOL. HOW DO WE USE IT?

NO IDEA. JUST MEMORIZIZE THESE SHELL
COMMANDS AND TYPE THEM TO SYNC UP.
IF YOU GET ERRORS, SAVE YOUR WORK
ELSEWHERE, DELETE THE PROJECT,
AND DOWNLOAD A FRESH COPY.



Commit messages

	COMMENT	DATE
O	CREATED MAIN LOOP & TIMING CONTROL.	14 HOURS AGO
O	ENABLED CONFIG FILE PARSING	9 HOURS AGO
O	MISC BUGFIXES	5 HOURS AGO
O	CODE ADDITIONS/EDITS	4 HOURS AGO
O	MORE CODE	4 HOURS AGO
O	HERE HAVE CODE	4 HOURS AGO
O	AAAAAAA	3 HOURS AGO
O	ADKFJSLKDFJSDFKJ	3 HOURS AGO
O	MY HANDS ARE TYPING WORDS	2 HOURS AGO
O	HAAAAAAAAANDS	2 HOURS AGO

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

The seven rules of a great Git commit message

© Chris Beams

1. Separate subject from body with a blank line
2. Limit the subject line to 50 characters
3. Capitalize the subject line
4. Do not end the subject line with a period
5. Use the imperative mood in the subject line
6. Wrap the body at 72 characters
7. Use the body to explain what and why vs. how

Literature

- How to write good commit messages: <https://chris.beams.io/posts/git-commit/>
- Complete book about git: <https://git-scm.com/book/en/v2>
- GitHub flow guide: <https://guides.github.com/introduction/flow/>
- Git cheat sheet: <https://github.github.com/training-kit/downloads/github-git-cheat-sheet/>
- Git simple examples: <https://rogerdudler.github.io/git-guide/>

GitHub Pages

GH Pages Demo

Docs: <https://pages.github.com/>

1. Create repository named your_username.github.io
2. git clone https://github.com/username/username.github.io
3. Create index.md file with content, commit and push: git push -u origin master
4. Your site is available at https://your_username.github.io

Questions?

Task #1

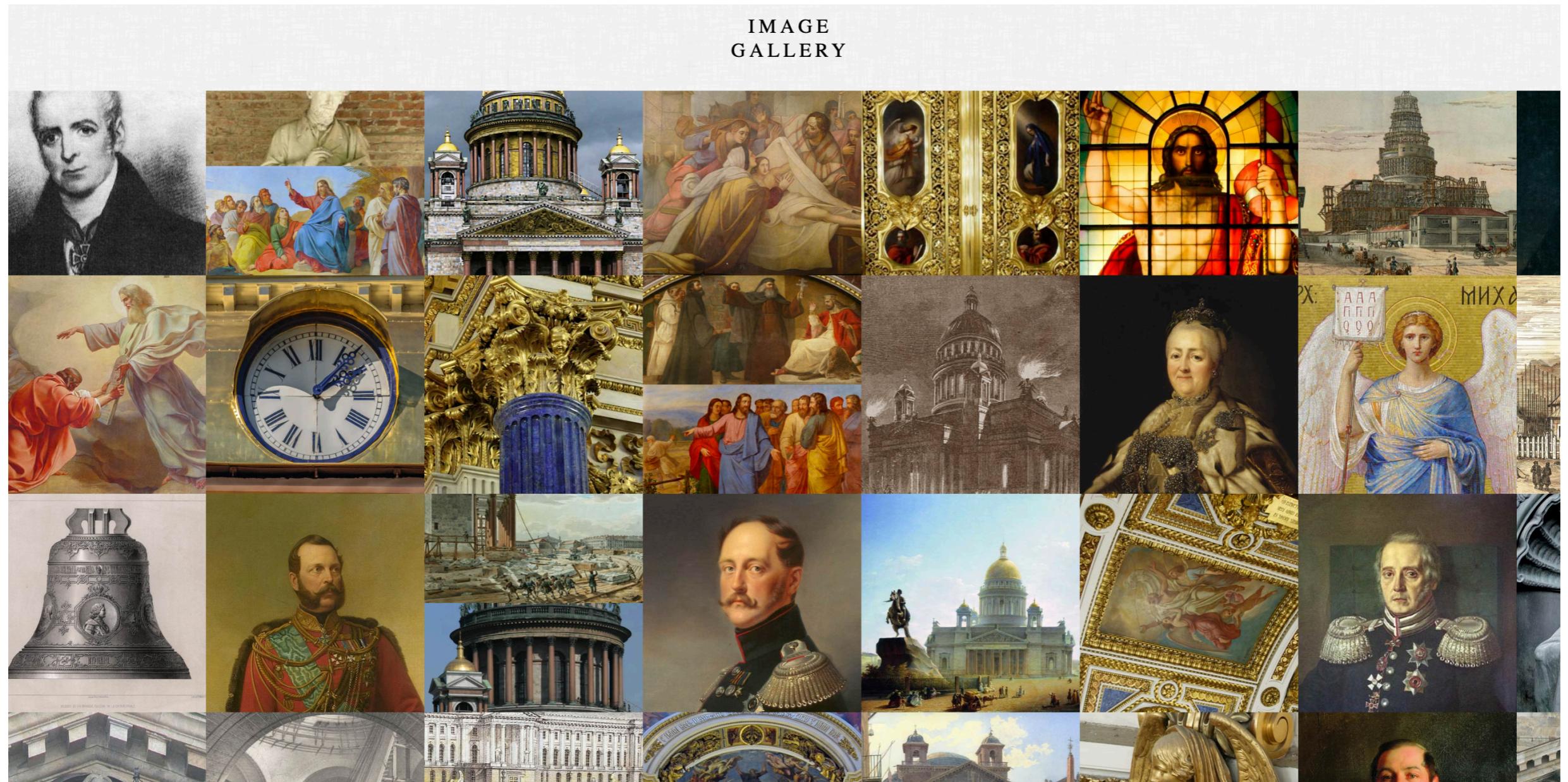
Reading → Coding → Deploy → Code-review

<https://wad.itmo.xyz/>

Task #1

- Register on GitHub
- Join <https://github.com/itmo-wad>
- Create personal repository
- Push website sources
- Write documentation in README.md
- Ask any questions in Telegram chat

website consists of header and body with equal sized square images



Screen resolution is 1980x1200, you can optionally try to make it responsive

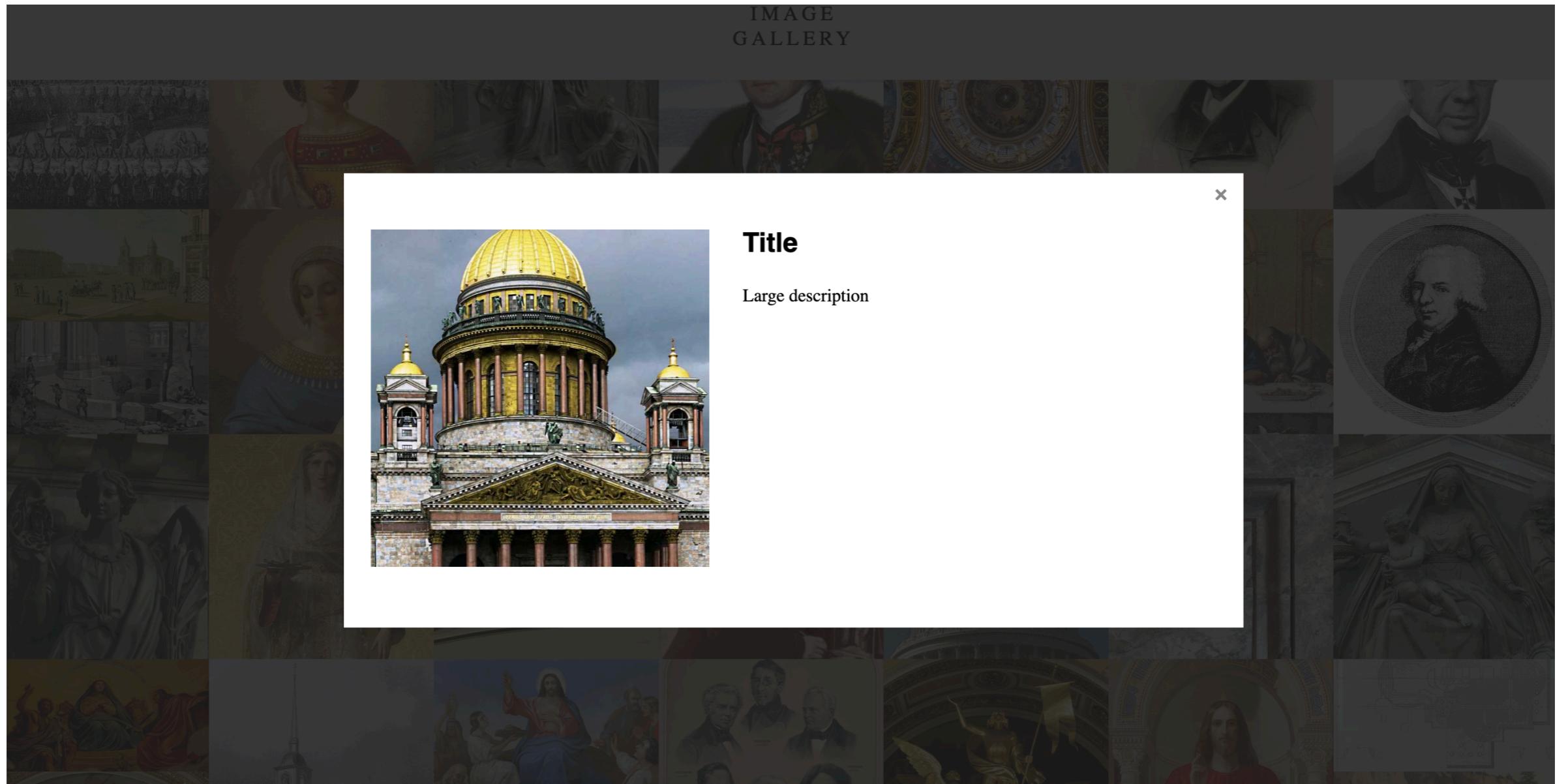
Hovered image should have 1px white border.

Hovered image reveals caption.



Hovered image should be shadowed with 60%

After click, there should appear modal window with text.



Optionally, this window can have image preview to the left and description with title to the right.

Advice

- Communicate in the chat. Ask questions. Help other student with their questions.
- Don't copy other's code. Self practice is the key.

Literature

- HTML+CSS with examples: https://www.w3schools.com/html/html_css.asp
- FancyBox gallery: <https://fancyapps.com/fancybox/3/docs/#usage>
- CSS Grid examples: <https://gridbyexample.com/examples/>
- Many examples in the left menu: https://www.w3schools.com/howto/howto_css_images_side_by_side.asp

Practice time