

## ISTE240: Team Project

### Design Document

#### 1. Title page



- a. Artificial Bricks - A Unix Reference for Everyone

#### 2. Introduction and overview of the project


The Artificial Bricks - Unix Tutorial Site is a website meant to teach beginners, aspiring web developers, and provide reference for web professionals looking for a refresher in Unix that is relevant to their job. We are looking to provide a solution that leverages real-life examples, a command description, and in-depth explanations on how to fully take advantage of different Unix commands.

#### 3. Site Goals

- a. Tutorial site for new developers to learn unix in an interactive way
- b. Reference site for more experienced developers to brush up on skills and delve into topics they may not have a ton of experience in
- c. We're better than everyone else. (Interactive videos, gifs, and input based tests)

## 4. Audience definition

### Persona 1 - Felipe Gutierrez



#### Bio

Felipe is currently a university student majoring in Web & Mobile Development at Rochester Institute of Technology, NY. He has some experience in programming, mostly from his class projects.

#### Scenario

Felipe is looking for a tutorial website to learn more about Unix/Shell scripting to supplement his class lectures and needs a quick-reference of Unix commands while working on his assignments/projects. While working on one of his class projects on Shell Scripting, he hits a roadblock and starts searching on Google for a quick reference of Unix commands.

#### Motivations

KNOWLEDGE	<div></div>	TIME MGMT	<div></div>
TEAMWORK	<div></div>	JOB SEARCH	<div></div>

#### Goals

- To become competent in Shell scripting programming.
- Find a full-time job as a programmer once he graduates from college next year.
- Loves working on personal projects to expand his portfolio.

#### Frustrations

- Lack of a searchable and easy to understand quick-reference guide.
- Cannot have his questions clarified by verified experts.
- Cannot pick up from where he left off during a previous site visit.

#### Behaviors

Ease of use

Content & Organization

Site Design


Ease of Understanding


Additional Features


#### Influences

- Technology
- Blogs/Forums
- Professors
- Unix/Shell
- Online Learning

#### Frequently used platforms

 Windows

 Google Chrome

 Android

#### Quote


"I need a quick-reference of all the Unix commands which is searchable and easy to understand."

#### Personal Info

**Felipe Gutierrez**  
21, Rochester, NY  
Student

• STATUS	• SALARY
Single	\$10K(Freelance)
• GENDER	• EDUCATION
Male	College

## Persona 2 - Maria Spencer



### Bio

Maria is a Team Lead for the development team at Mead Technologies, Inc. Currently, she heads a team of twelve programmers who are working on a Unix based project. She has been working at Mead for the past three years and loves sharing her knowledge while helping others.

### Scenario

Maria is having a quiet day at work and decides to visit popular Unix websites to see if she can contribute in any of the forums. Most of the pages she visits appear cluttered and unorganized to easily navigate. She wishes that there was a website where she could just login and find a list of unanswered questions which she could answer.

### Motivations

KNOWLEDGE	<div></div>	TIME MGMT	<div></div>
TEAMWORK	<div></div>	HELPFULLNESS	<div></div>

### Goals

- Start a side hustle to connect her passion for helping others with work and to expand her knowledge and creativity.
- Share her technical knowledge and expertise by contributing in forums and tutorials.
- Find a mentee.

### Frustrations

- Lack of good tutorial websites that have an option to get in touch with an expert easily.
- Cluttered organization which makes finding information cumbersome.
- Lack of video tutorials that explain concepts for beginners and intermediates.




### Preferences

Ease of use	<div></div>
Content & Organization	<div></div>
Site Design	<div></div>
Ease of Understanding	<div></div>
Additional Features	<div></div>

### Influences

- Open Source
- Co-workers
- Technology
- Blogs/Forums
- Unix/Shell

### Frequently used platforms

		
Mac	Safari	iOS

### Maria Spencer


27, San Francisco, CA

Web Developer

.STATUS	.SALARY
Dating	\$120K
.GENDER	.EDUCATION
Female	MS Computer Science

“All the knowledge I gained is in vain if I do not use it to help others.”

## Persona 3 - Frank Robinson



### Frank Robinson

44, Fargo, ND

Business Owner,  
Landscaping

• STATUS	• SALARY
Married	\$60K
• GENDER	• EDUCATION
Male	Some College

#### Bio

Frank started working in his dad's landscaping company when he was a teenager. He liked computers in high school but there was no money for college. When Frank was in his 20s, his dad died, and Frank took over the company.

#### Scenario

Frank is now thinking about going back to college and build a career creating websites. With a young family and little time for himself, Frank needs to be able to access information on the go and start learning quickly.

#### Motivations

KNOWLEDGE	<input type="range"/>	TIME MGMT	<input type="range"/>
NEW CAREER	<input type="range"/>	INCOME	<input type="range"/>

#### Goals

- Needs to find a job that is not so physically demanding.
- Needs to bring in a steady income for growing family demands.
- Always liked computers when he was in high school.
- Become adept at using the Unix interface and commands.

#### Frustrations

- Need to access site sporadically throughout the day (mobile & laptop).
- Needs to quickly get back to where he left off in tutorial
- Not sure where to start; needs guidance.

“I need a career that will allow me to keep working into my 60s.”


#### Preferences


Ease of use	<input type="range"/>
Content & Organization	<input type="range"/>
Site Design	<input type="range"/>
Ease of Understanding	<input type="range"/>
Additional Features	<input type="range"/>


#### Influences

- Family
- Career
- Technology
- Income


#### Frequently used platforms

Windows

Chrome

Apple

## Persona 4 - Delanna Terry



### Bio

Delanna is a Software Developer at CoreTech Solutions, Inc. Recently, she was reassigned to a project that is based on a Unix environment. Although she learned Unix in College, it has been a while and she feels out of touch.

### Scenario

Delanna is in her office, working on her Unix based project. While working on a segment, she is not quite sure about the right Unix commands to use. She thinks that it would be a good idea to refresh some of the basic concepts quickly before looking at the advanced Unix commands. Delanna then Googles her questions to find a good online tutorial.

### Motivations

KNOWLEDGE	<div></div>	TIME MGMT	<div></div>
CAREER DEV	<div></div>	NEW SKILLS	<div></div>

### Goals

- To relearn some of the skills that she acquired in college.
- To diversify her portfolio by gaining competency in more software development platforms and environments.
- To become competent and independent at her workplace.

### Frustrations

- Content on most tutorial websites are not categorized into difficulty/expertise.
- Inability to save the learning progress – save progress to be able to continue from the last read webpage in a module.

### Delanna Terry

32, Seattle, WA  
Software Developer

• STATUS	• SALARY
Married	\$105K
• GENDER	• EDUCATION
Female	BS Information Technology

“Self-education is key if you want to stay ahead of your competition.”

### Preferences

Ease of use

Content & Organization

Site Design




Ease of Understanding

Additional Features

### Influences

• Peers • Blogs/Forums  
• Learning Portals • WIC Org  
• Technology

### Frequently used platforms

    
Windows Firefox Apple

**Dr. Chad Hubbard**  
45, New York, NY  
Professor

Attribute	Value
STATUS	Married
SALARY	\$110K
GENDER	Male
EDUCATION	PhD, Information Sciences & Tech

**Bio**

Dr. Chad is a Professor at the New York Emerging Technology Institute (NYETI) and is also the Director of the Center for Emerging Technology on campus. He teaches Information Technology and web programming concepts to upperclassmen and graduate students.

**Scenario**

Dr. Chad is preparing a lecture for one of his UNIX classes and goes online to look for a few websites which could be used as supplemental reference sources. He would prefer to suggest websites which are comprehensive, exhaustive, and explains the concepts in a simple and easy to understand manner.

**Motivations**

Motivation	Level (0-100)
KNOWLEDGE	85
RESEARCH	90
TIME MGMT	65
ACADEMIA	75

**Goals**

- To further expand his knowledge.
- To be a good mentor for his students and provide them with the tools and resources to be successful.

**Frustrations**

- Dearth of comprehensive and reliable information.
- Information is not often broken down into simpler concepts so that someone who is new to the domain can understand them without seeking additional help.

**“Even the most complex concepts are fun to learn if it you understand how to simplify it.”**

**Preferences**

Preference	Level (0-100)
Ease of use	95
Content & Organization	90
Site Design	85
Ease of Understanding	95
Additional Features	75

**Influences**

- Academia
- Journals/Research
- Conferences
- CTA.tech
- Technology

**Frequently used platforms**

- Linux
- Firefox
- Apple

## 5. Competitive Analysis

- a. Site A (<https://www.tutorialspoint.com/unix/index.htm>)
  - i. Strengths
    - 1. Clean color scheme and site design
    - 2. Main content centered, helps user focus on what's being taught
    - 3. Navigation on the left helps user keep track of where they are in the lessons
  - ii. Weaknesses
    - 1. Content color is fairly uniform and makes it difficult to identify important areas
    - 2. Terminal demos are gray and lack impact
    - 3. Nav bar on left could consider allowing the user to hide links of sections that don't apply to them (minimize the section) so they don't have to scroll down to get to a particular section
- b. Site B (<https://www.unixtutorial.org/>)
  - i. Strengths
    - 1. Centered content helps the user focus on material
    - 2. Drop down nav doesn't cover the main content
    - 3. Terminal content is in color and draws attention to it
  - ii. Weaknesses
    - 1. The page is very cluttered with additional articles navigating elsewhere in the site
    - 2. Clutter is very distracting and is likely to disengage user
- c. Site C (<http://www.ee.surrey.ac.uk/Teaching/Unix/>)
  - i. Strengths
    - 1. Centered content
    - 2. Colorful graphics and terminal examples help keep the user engaged
    - 3. Clear step-by-step direction on the main page
  - ii. Weaknesses
    - 1. After the main page, you lose the direction and there's no way to keep track of progress

2. The color scheme and site design seems a bit outdated
  3. Too much white space on the front page
- d. Site D (<http://matt.might.net/articles/basic-unix/>)
- i. Strengths
    1. Content centered, and in a card-based format helps keep relevant information grouped, and gives the user a sense of progress.
    2. Provides informative and detailed information about Unix commands and applications
  - ii. Weaknesses
    1. Website design seems out of date
    2. After the main page, there's no way for the user to reliably track their progress
- e. Site E (<https://www.cs.sfu.ca/~ggbaker/reference/unix/>)
- i. Strengths
    1. Centered content
    2. Colorful graphics and terminal examples help keep the user engaged
    3. Clear step-by-step direction on the main page
  - ii. Weaknesses
    1. After the main page, you lose the direction and there's no way to keep track of progress
    2. The color scheme and site design seems a bit outdated
    3. Unnecessary purple bar on left

## 6. Site Content

- a. Index (for users who just want to find commands quickly and skip tutorial)
  - i. Alphabetical
  - ii. By topic
    1. Files
    2. Directories
    3. Output
    4. Permissions



- 5. Wildcards
  - 6. Special Characters
- b. Tutorials (for users who need step-by-step instructions and details)
  - i. Estimated time to complete
  - ii. Separate information by topic
    - 1. The Unix Environment
    - 2. Logging in to a Unix System
    - 3. Working with Directories
    - 4. Working with Files
    - 5. Access Rights
    - 6. Outputting Information
  - iii. Quiz after each tutorial with a redirect to information they got wrong.
- c. Glossary of Terms
  - i. Shell
  - ii. Kernel
  - iii. Terminal
  - iv. SSH
  - v. SFTP
- d. Introductory information
  - i. What is Unix?
  - ii. What do I use it for?
  - iii. Command-line vs GUI (why do I want to use a command-line?)
- e. Environment questions
  - i. What is the terminal window?
  - ii. How do I get to a terminal window?
  - iii. What is a shell?
  - iv. What is a kernel?
- f. Unix Commands
  - i. cd

1. (cd) stands for change directory and allows you to move around the directory structure relative to where you currently are.
2. (cd ./dir-name) changes the active directory to dir-name directory that exists in the current directory
3. (cd ..) changes the active directory to the parent directory
4. (cd ~) places you in your home directory
5. (cd -) will switch you to the previous directory

ii. ls

1. (ls) lists your files
2. (ls -l) lists file in a long format which contains details about files
3. (ls -a) lists ALL files within a directory regardless if hidden or not

iii. chmod - change file permissions

1. Roles

- a. u = user
- b. g = group
- c. o = others

2. Permissions

- a. r = read
- b. w = write
- c. x = execute

iv. mkdir - make a directory

v. mv - move or rename files

vi. cp - Copy files

vii. lp - sends the file to the printer

viii. man - displays system documentation

ix. whatis - gives a one-line description of a command, without options

x. apropos - when you are unsure of a command name

xi. pwd - print working directory

xii. rm - remove directory entries

- xiii. rm -i confirm remove directory
- xiv. rmdir - remove directory (if empty)
- xv. cd - change directory
- xvi. touch
- xvii. cat - displays a file or concatenates files
- xviii. less - displays file one screen at a time
- xix. passwd - change your current password
- xx. kill
- xxi. exit
- g. Special Characters
  - i. . working directory
  - ii. .. parent directory of the working directory
  - iii. ~ home directory
  - iv. / root directory
  - v. \* wildcard for a string of characters
  - vi. ? wildcard for a single character
- h. Keyboard Shortcuts
  - i. Ctrl-C interrupts whatever process is currently running
  - ii. Tab Key - used for filename completion
  - iii. Esc Key - used for filename completion
- i. Content Grouping and Labeling (discuss)
- j. Site Map

<b>Tutorials</b>	<b>Index</b>	<b>Glossary</b>	<b>About</b>
<a href="#">The Unix Environment</a>	<a href="#">Alphabetical</a>	<a href="#">Shell</a>	<a href="#">Contact Information</a>
<a href="#">Logging in to a Unix System</a>	<a href="#">By Topic</a>	<a href="#">Kernel</a>	<a href="#">Project Team</a>
<a href="#">Working with Directories</a>	<a href="#">Files</a>	<a href="#">Terminal</a>	<a href="#">References</a>
<a href="#">Working with Files</a>	<a href="#">Directories</a>	<a href="#">SSH</a>	<a href="#">Investors</a>
<a href="#">Access Rights</a>	<a href="#">Output</a>	<a href="#">SFTP</a>	
<a href="#">Outputting Information</a>	<a href="#">Permissions</a>		
	<a href="#">Wildcards</a>		
	<a href="#">Special Characters</a>		

The website will contain two types of sitemaps. The first, as shown above, is the aesthetic portion of the site map. This image will be on each page of the website. The

purpose of this sitemap is to give the visitors an option to have a general view of all the sites within the project rather than using the navigation bar and/or forward and back arrow buttons.

The second part of the sitemap page will be a separate page that contains a more detailed breakdown of each content element in our project by topic and will contain links to every page of the website. Users will be able to navigate the entire site directly from the site map.

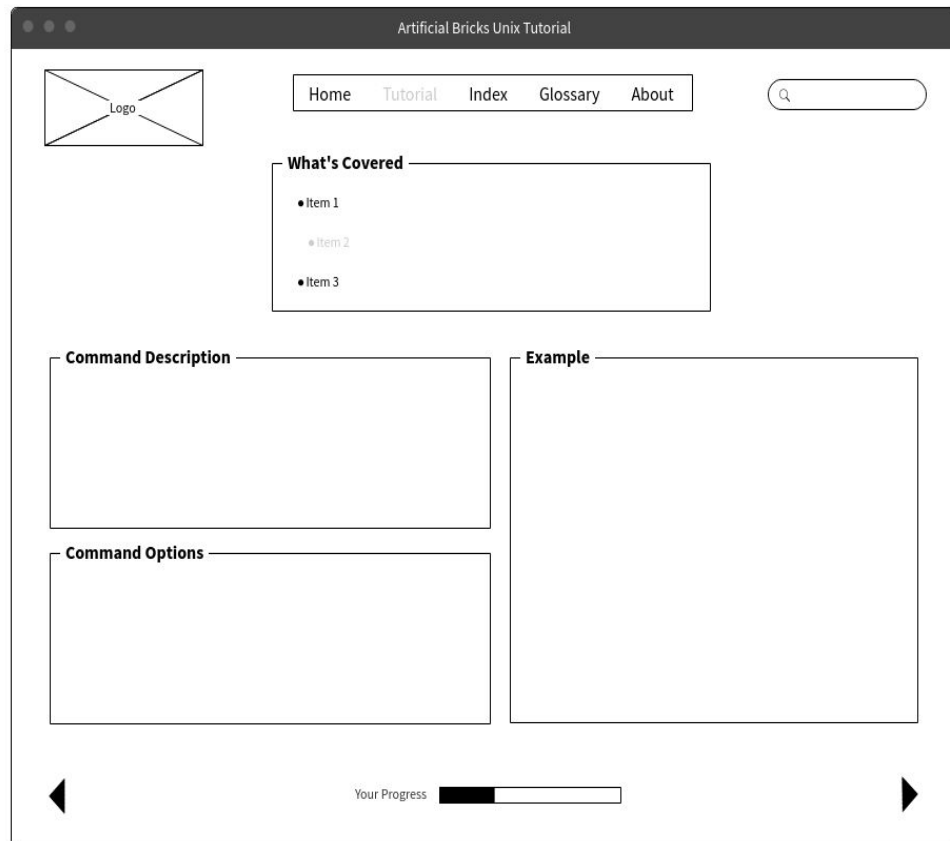
## 7. Design Sketches

- a. The Home Page (Desktop View) - this page welcomes the user, especially newbies who aren't sure if this is the site they want to use. Instead of hitting them with technical information right away, we are building a relationship to encourage them to return.



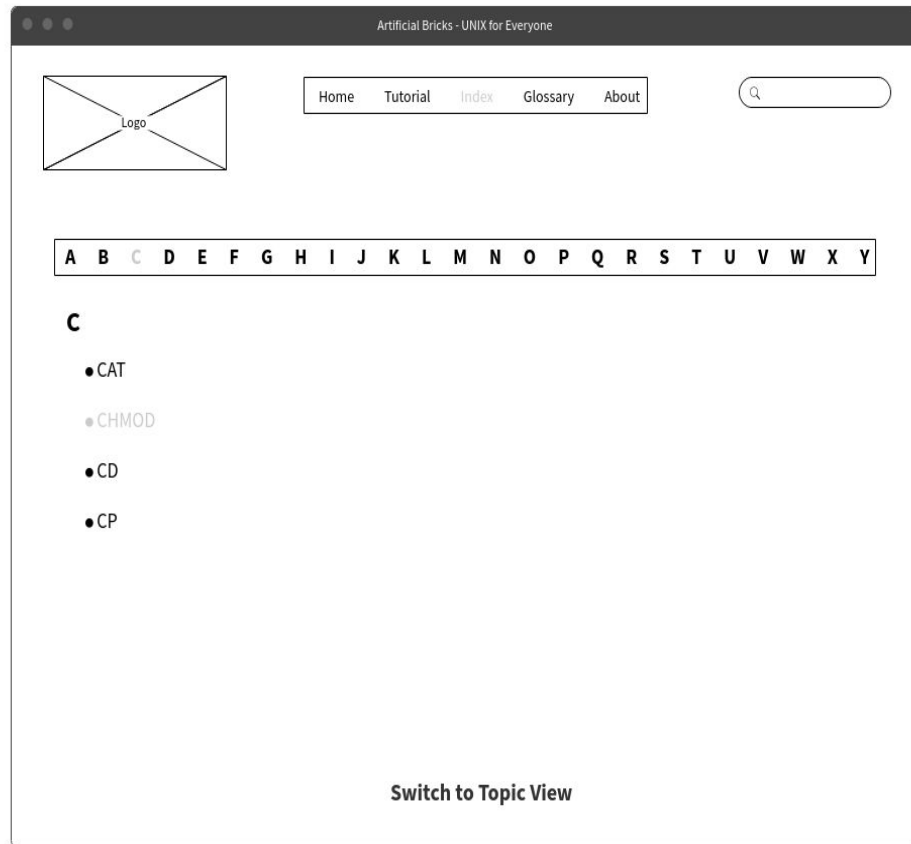
- b. The Tutorials Page (Desktop View) - On this page, we are in one of the tutorials. The page starts out with a summary view of the entire tutorial

with a secondary navigation panel (apart from the main nav) that allows the user to jump to any point in the tutorial. The remainder of the page will show a short description of the command, the different flags used with the command, and a screenshot example of the command being executed.



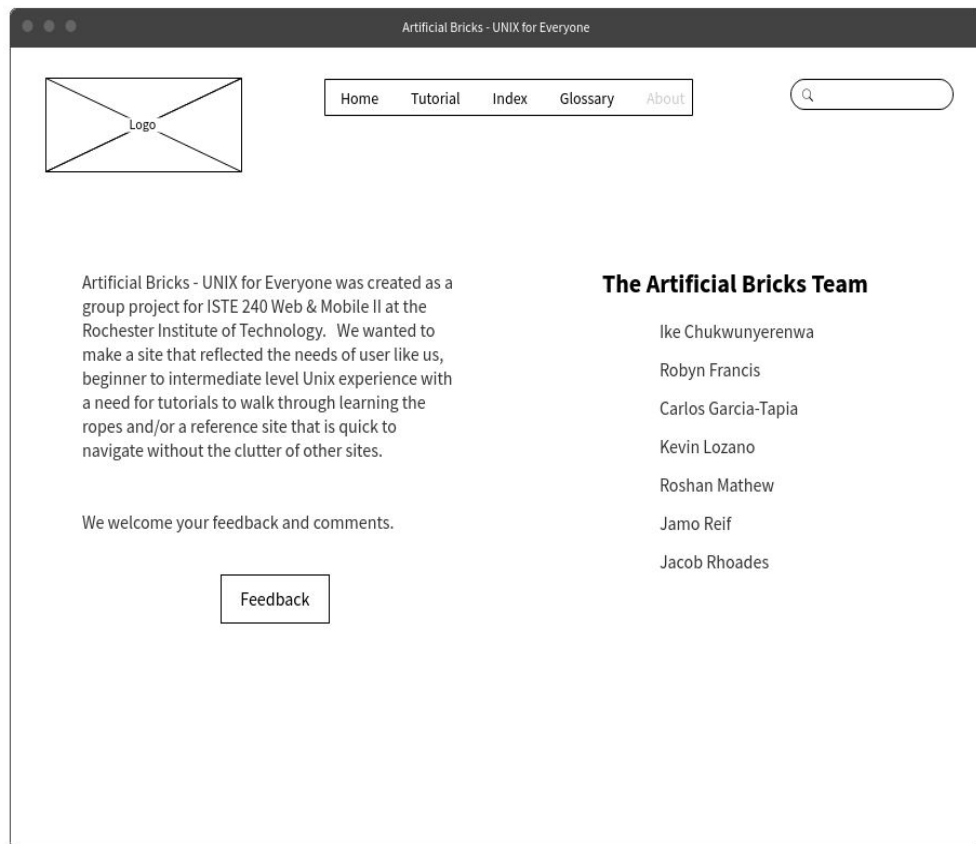
- c. Index Page (Desktop View) - This page is for users who are familiar with Unix commands and are looking for a quick reference without clutter. Each alphabetical page will contain a list of all the commands that begin with the corresponding letter of the alphabet and link to the correct reference page. (Note: The Index will also have a topical view with commands listed by

main topic headings, again, linking to the associated reference page.)

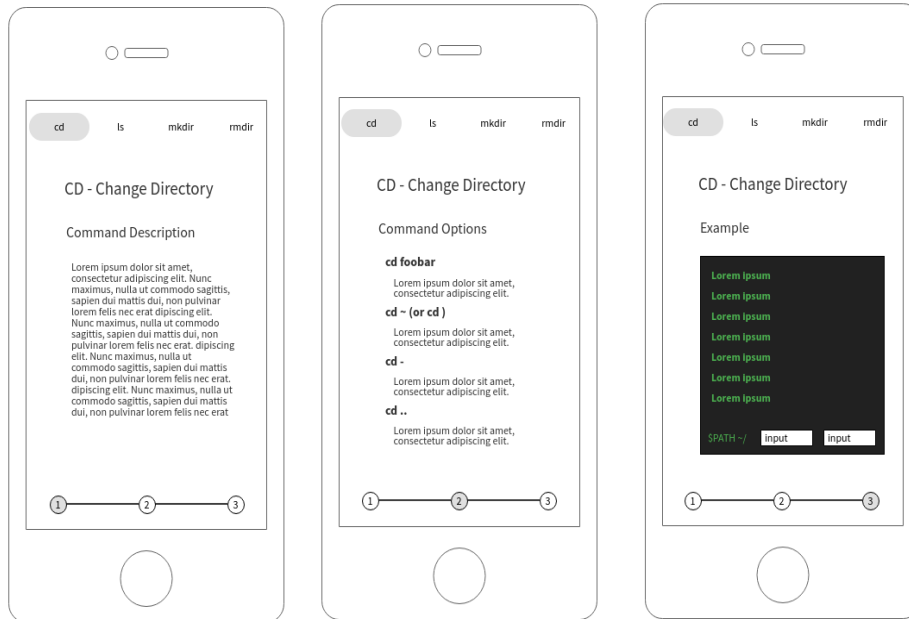


- d. Glossary Page (Desktop View) - This page will be very similar to the Index page with an alphabetical listing of terms. Depending on the number of terms identified from the tutorial, this may be only one or two pages and not require an alphabetical navbar.

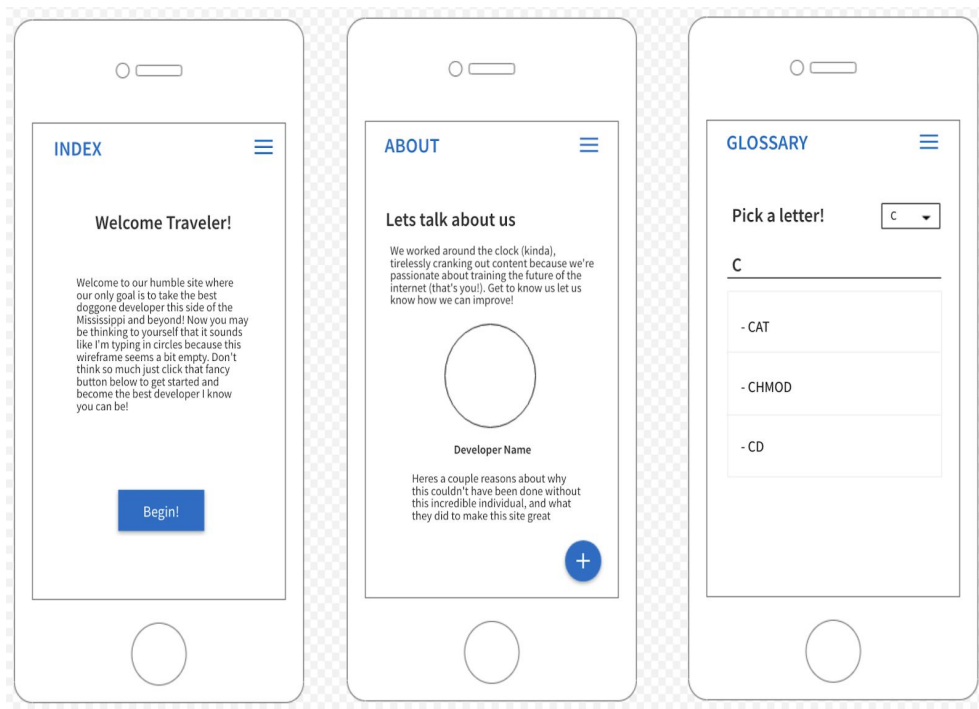
e. About Page (Desktop View)



f.



g.



h.

## 8. Style Guide





- a.
- b. In the interest of pursuing a modern look to our site, we will be using primarily sans-serif fonts for most of our content. We plan to use Lato, and Oswald as they provide a good contrast while still belonging to the same font family.

Oswald

Regular ▼

Lato

Regular ▼



## The spectacle before us was indeed sublime.

Apparently we had reached a great height in the atmosphere, for the sky was a dead black, and the stars had ceased to twinkle. By the same illusion which lifts the horizon of the sea to the level of the spectator on a hillside, the sable cloud beneath was dished out, and the car seemed to float in the middle of an immense dark sphere, whose upper half was strewn with silver. Looking down into the dark gulf below, I could see a ruddy light streaming through a rift in the clouds.

button styles

All buttons no hover



Button1 with hover



Button2 with hover



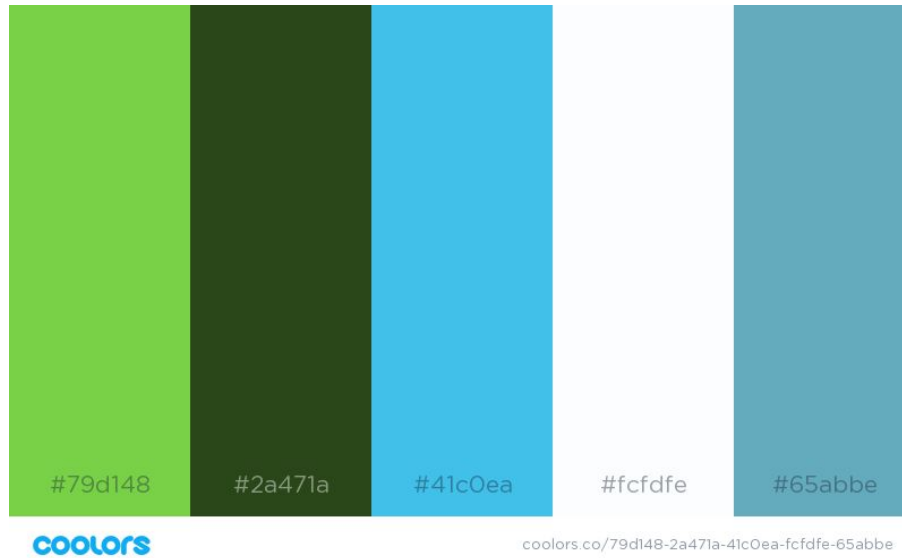
Button3 with hover



Button4 with hover



Official Site Color Scheme:



#### d. Nav Bar and Form Buttons



Practice Completed


92%

CONTINUE

RETRY

Welcome!

Log in to access your profile.

 Log in with RIT

USERNAME - [FORGOT YOUR USERNAME?](#)

PASSWORD - [FORGOT YOUR PASSWORD?](#)

Log in to your account

Need an account? [Create your AB UNIX account.](#)

AB

UNIX

USERNAME

PASSWORD

Forgot your [username](#) or [password](#)?

Log In

Need an account? [Create your AB UNIX account.](#)

- AB

UNIX

Home

Tutorial

Index

Glossary

About

Practice

92

CONTIN

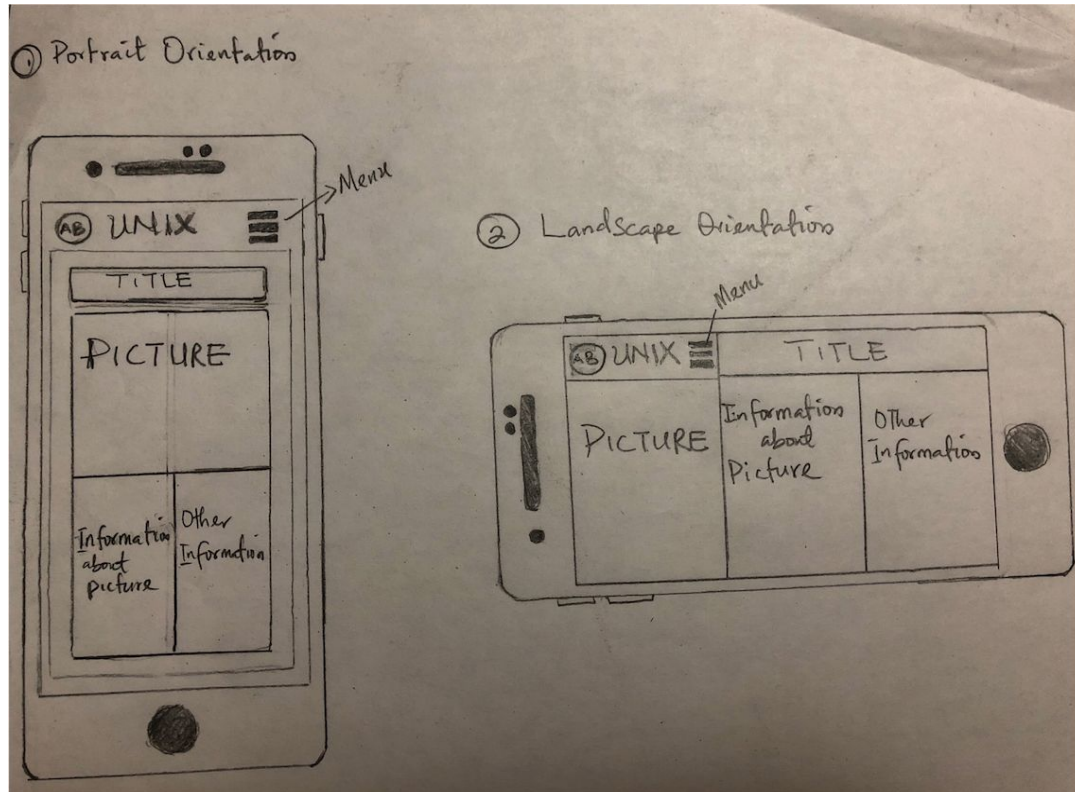
RETR

9. Screen rotate mobile: We work on how to change from column to row for mobile-only. -Ike

a.

i. Landscape Orientation

ii. Portrait Orientation



## 10. Conclusion

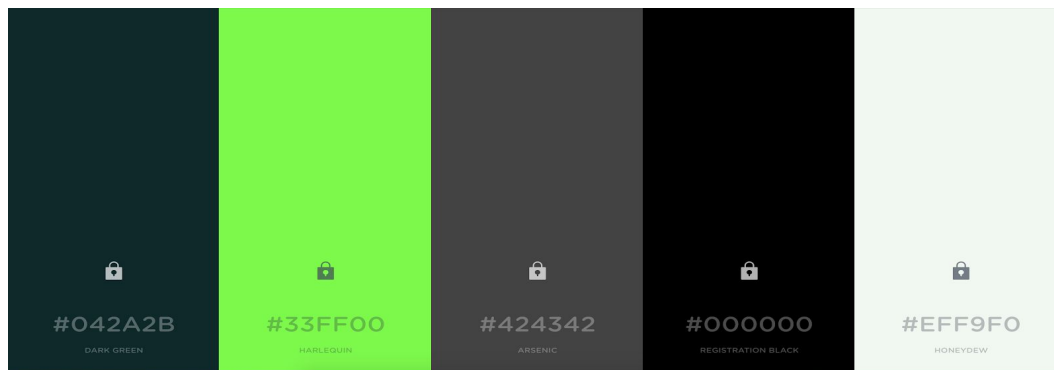
- A conclusion is usually a restatement of the introduction/overview but is worded in terms of "What we did" instead of "What we will do".
- How does our site design, concept, content, etc. solve the user's problem? This time you can use more technical terms.

The Artificial Bricks Unix Tutorial Site is a website meant to teach beginners, aspiring web developers, and provide a reference for web professionals looking for a refresher in Unix that is relevant to their job. As displayed above we leverage real-life examples via interactive terminal questions, in-depth explanations on a commands description as well as descriptions of what flags are available to each command. With a modern and responsive design, our users can learn anywhere and at any pace in a straight-forward yet comprehensive format that maximizes their time.

## 11. Appendix 1 - Meeting Notes

### Meeting 1 Summary:

General Color Scheme\*:



\* Subject to change

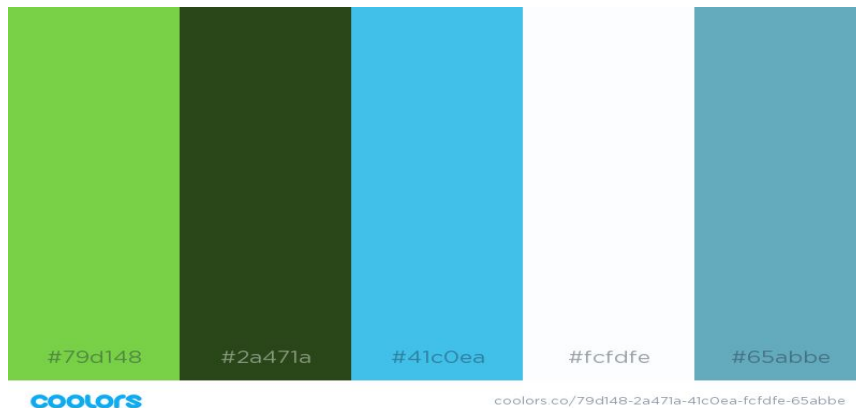
Carlos is creating a mockup with dummy content to get an idea of what the flow of our page will be like. Trello was decided upon to keep track of objectives. The site may contain interactive inputs to simulate Unix commands being entered, gifs, and instructional videos. The site may also have section quizzes to how well users are retaining the information.

### Meeting 2 + 3 Summary:



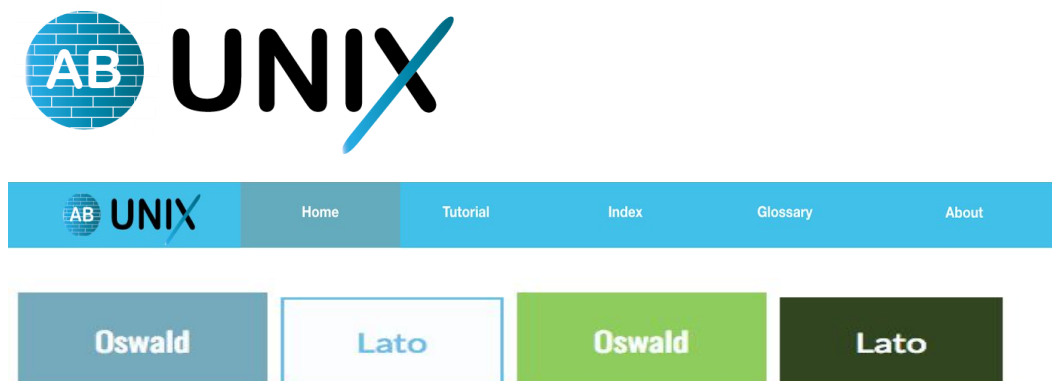
A starting point for the logo was decided on and strength/weakness analysis was completed for competitor sites. A general timeline for work on the second part of

the project was determined. Group dispersed to create general wireframes to be discussed and decided on during the next meeting. The color scheme was updated to maintain a look more in line with tutorialspoint as we found the website's color scheme to be very clean, and inviting while our original color scheme seemed intimidating. (new color scheme below)



## Meetings 4 + 5

Meeting 4: Upon deciding on a color scheme the focus of our work shifted to creating wireframes, and styling common used elements to match our color scheme (buttons, navigation, forms, etc.). Meeting 5: After mocking up a few wireframes and deciding to change the design of our personas we have a much clearer design in mind once the project gets started.





## **Meeting 6**

Final group meeting to decide on finishing touches such as expanding on content, current designs, and wireframes. A sitemap was put into place, and different desktop and mobile wireframes were added to distinguish between the unique views that would become available on the site. Content also continues to be expanded upon.