

Python Made Easy

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Requirements and Design Document

Project Name: Python Made Easy

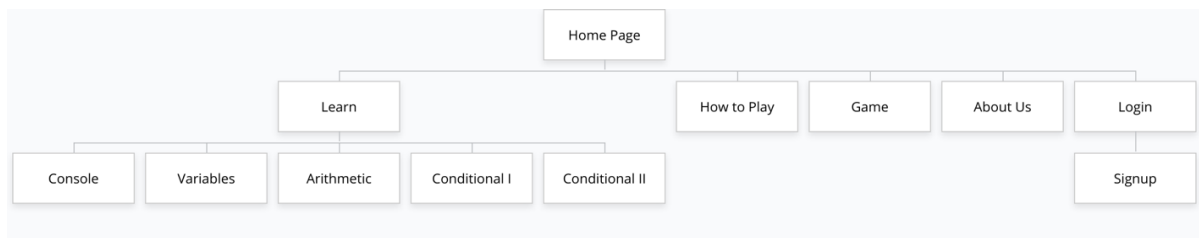
Project Overview:

The purpose of this website is to teach users the basics of Python through interactive matching games while simultaneously guiding them in creating a number guessing game. The potential users are the client, individuals interested in learning python, individuals interested in learning how to program, individuals interested in learning how to program a number guessing game, and anyone else interested in the website. The website will include: a home page, a login page, a signup page, a “How to Play” page to describe to purpose of the website to the user, a “Learn” page to allow the user to navigate through the learning modules, five learning module pages with textual information and an interactive matching game with multiple difficulties, a “Game” page that with a text editor and output console, and an “About Us” page that introduces the user to the author and client of the website. The website will be set up to control the user’s flow through the learning modules to create a logical flow for the user’s experience. Every module, excluding the first, will be locked until the previous module is completed. To complete a module, the user must correctly match every card in the matching game on the beginner and expert levels, then complete the instructions on the game page for the corresponding module.

Client Information:

- Stephanie Vail
- Student at the University of North Carolina at Charlotte
- svail@uncc.edu
- (336) 587-4700

Site Map:



Page Design:

- **Header**
 - Purpose: Bring consistency to the website and allow easy access to home page
 - Users: All users
 - Content:
 - Title of the website
 - No data entry.

Requirements and Design Document

- No validations.
 - Actions:
 - ◆ When user clicks on website title, user will be redirected to home page
- **Footer**
 - Purpose: Bring consistency to the website and allow easy HTML and CSS validation for each webpage.
 - Users: All users
 - Content:
 - HTML validation hyperlink
 - CSS validation hyperlink
 - Copyright information
 - No data entry.
 - No validations.
 - ◆ HTML and CSS will be validation on an external site.
 - Actions:
 - ◆ When user clicks on HTML validation link, user will be redirected to external HTML validation website.
 - ◆ When user click on CSS validation link, user will be redirected to external CSS validation website.
- **Navigation Bar**
 - Purpose: Allow easy navigation throughout website
 - Users: All users
 - Content:
 - Learn button
 - How to Play button
 - Game button
 - About Us button
 - Login button
 - No data entry.
 - No validations.
 - Actions:
 - ◆ When user clicks on Learn button, user will be redirected to Learn page.
 - ◆ When user clicks on “How to Play” button, user will be redirected to “How to Play” page.
 - ◆ When user clicks on Game button, user will be redirected to Game page.
 - ◆ When user clicks on “About Us” button, user will be redirected to “About Us” page.

Requirements and Design Document

- ◆ When user clicks on login button, user will be redirected to login page.

- **Home Page**

- Purpose: Welcome users to the website
- Users: All users
- Content:
 - The page will be set up with a python in the background and buttons for learning modules placed along the body of the snake in a sequential order.
 - No data entry or validations.
 - Buttons for site navigation will be present.
 - Actions:
 - ◆ When user clicks on a button, user will be redirected to the page associated with the given button.

- **How to Play**

- Purpose: Explain to users the purpose of the website, how it works, and the end result
- Users: Any user wanting to learn how to website works
- Content:
 - Textual information
 - Continue button
 - No validations
 - Actions:
 - ◆ When user clicks on the continue button, user will be redirected to the learn page.

- **Learn**

- Purpose: Allow easy navigation between learning modules for user
- Users: Any user completing the learning modules
- Content:
 - Console button
 - ◆ No validations.
 - Variables button
 - ◆ Validation to ensure previous module was completed.
 - Arithmetic button
 - ◆ Validation to ensure previous module was completed.
 - Conditionals I button
 - ◆ Validation to ensure previous module was completed.
 - Conditionals II button
 - ◆ Validation to ensure previous module was completed.
 - Actions:

Requirements and Design Document

- ◆ When user clicks on a clickable button, user will be redirected to page containing corresponding module.
- Special note: Clickable and Unclickable buttons will be distinguished.
- **Console**
 - Purpose: Allow users to learn and complete matching activity for inputs and outputs to the console in Python
 - Users: Any user completing the learning modules
 - Content:
 - Textual Information
 - Matching Activity
 - Shuffle button
 - Beginner/Expert radio buttons
 - ◆ Validation for Expert button to ensure matching activity was completed at beginner level.
 - Continue button
 - ◆ Validation to ensure matching activity was completed on beginner and expert level.
 - Actions:
 - ◆ When user matches a correct question and answer pair, the two matched elements disappear.
 - ◆ When user clicks on shuffle button, all questions and answers will be mixed together.
 - ◆ When user clicks on beginner radio button, matching activity will be set to easy difficulty.
 - ◆ When user clicks on expert radio button, matching activity will be set to hard difficulty.
 - ◆ When user clicks on the continue button, user will be redirected to Game page.
 - Special Note: There will be instructions on the Game page to assist user in implementing input and output for the guessing game.
- **Variables**
 - Purpose: Allow users to learn and complete matching activity for variables in Python
 - Users: Any user completing the learning modules
 - Content:
 - Textual Information
 - Matching Activity
 - Shuffle button
 - Beginner/Expert radio buttons
 - ◆ Validation for Expert button to ensure matching activity was completed at beginner level.

Requirements and Design Document

- Continue button
 - ◆ Validation to ensure matching activity was completed on beginner and expert level.
 - Actions:
 - ◆ When user matches a correct question and answer pair, the two matched elements disappear.
 - ◆ When user clicks on shuffle button, all questions and answers will be mixed together.
 - ◆ When user clicks on beginner radio button, matching activity will be set to easy difficulty.
 - ◆ When user clicks on expert radio button, matching activity will be set to hard difficulty.
 - ◆ When user clicks on the continue button, user will be redirected to Game page.
 - Special Note: There will be instructions on the Game page to assist user in implementing variables for the guessing game.
- **Arithmetic**
 - Purpose: Allow users to learn and complete matching activity for arithmetic in Python
 - Users: Any user completing the learning modules
 - Content:
 - Textual Information
 - Matching Activity
 - Shuffle button
 - Beginner/Expert radio buttons
 - ◆ Validation for Expert button to ensure matching activity was completed at beginner level.
 - Continue button
 - ◆ Validation to ensure matching activity was completed on beginner and expert level.
 - Actions:
 - ◆ When user matches a correct question and answer pair, the two matched elements disappear.
 - ◆ When user clicks on shuffle button, all questions and answers will be mixed together.
 - ◆ When user clicks on beginner radio button, matching activity will be set to easy difficulty.
 - ◆ When user clicks on expert radio button, matching activity will be set to hard difficulty.
 - ◆ When user clicks on the continue button, user will be redirected to Game page.

Requirements and Design Document

- Special Note: There will be instructions on the Game page to assist user in implementing arithmetic for the guessing game.
- **Conditionals I**
 - Purpose: Allow users to learn and complete matching activity for if/else statements in Python
 - Users: Any user completing the learning modules
 - Content:
 - Textual Information
 - Matching Activity
 - Shuffle button
 - Beginner/Expert radio buttons
 - ◆ Validation for Expert button to ensure matching activity was completed at beginner level.
 - Continue button
 - ◆ Validation to ensure matching activity was completed on beginner and expert level.
 - Actions:
 - ◆ When user matches a correct question and answer pair, the two matched elements disappear.
 - ◆ When user clicks on shuffle button, all questions and answers will be mixed together.
 - ◆ When user clicks on beginner radio button, matching activity will be set to easy difficulty.
 - ◆ When user clicks on expert radio button, matching activity will be set to hard difficulty.
 - ◆ When user clicks on the continue button, user will be redirected to Game page.
 - Special Note: There will be instructions on the Game page to assist user in implementing if/else statements for the guessing game.
- **Conditionals II**
 - Purpose: Allow users to learn and complete matching activity for “while’ and ‘for’ loops in Python
 - Users: Any user completing the learning modules
 - Content:
 - Textual Information
 - Matching Activity
 - Shuffle button
 - Beginner/Expert radio buttons
 - ◆ Validation for Expert button to ensure matching activity was completed at beginner level.
 - Continue button

Requirements and Design Document

- ◆ Validation to ensure matching activity was completed on beginner and expert level.
 - Actions:
 - ◆ When user matches a correct question and answer pair, the two matched elements disappear.
 - ◆ When user clicks on shuffle button, all questions and answers will be mixed together.
 - ◆ When user clicks on beginner radio button, matching activity will be set to easy difficulty.
 - ◆ When user clicks on expert radio button, matching activity will be set to hard difficulty.
 - ◆ When user clicks on the continue button, user will be redirected to Game page.
 - Special Note: There will be instructions on the Game page to assist user in implementing “while” and “for” loops for the guessing game.
- **Game**
 - Purpose: Allow user to complete the number guessing game as learning modules are completed and give user the ability to freely practice writing code in Python
 - User: Any user completing the learning modules or wanting to practice coding in Python
 - Content:
 - Textual Information
 - ◆ Validation to ensure instructional information corresponding to modules that have not been completed by user are not shown.
 - Embedded text editor
 - Embedded Python interpreter/Console
 - Learn button
 - Actions:
 - ◆ User can edit information in embedded text editor.
 - ◆ User can run Python program in embedded interpreter.
 - ◆ When user clicks on learn button, user is redirected to learn page.
- **About Us**
 - Purpose: Allow user to meet and contact author and client of website
 - User: Any user interested in meeting or contacting author or client
 - Content:
 - Textual Information
 - ◆ Includes contact information for author and client.
 - No data entry.
 - No validations.

Requirements and Design Document

- No actions

Dynamic Functionality on the Website:

- **Login form**
 - Page: login page
 - Reason: Allow users to retrieve progress from a previous session
 - URL: <https://login.yahoo.com/?lang=en-US&src=homepage&done=https%3A%2F%2Fwww.yahoo.com%2F&pspid=2023538075&activity=ybar-signin>
- **Signup form**
 - Page: signup page
 - Reason: Allow users to save progress for future sessions
 - URL: <https://login.yahoo.com/account/create?lang=en-US&src=homepage&activity=ybar-signin&pspid=2023538075&done=https%3A%2F%2Fwww.yahoo.com%2F&specId=yidReg&done=https%3A%2F%2Fwww.yahoo.com%2F>
- **Matching Activity**
 - Pages: Console, Variables, Arithmetic, Conditionals I, and Conditionals II
 - Reason: Allow users to learn Python concepts through the interactive matching activity
 - URL: <https://quizlet.com/489172192/match>
- **Embedded text editor and Python interpreter**
 - Page: Game
 - Reason: Allow user to use Python without installing on their machine
 - URL: <http://cpp.sh/>
 - This website is a text editor and compiler for C++. The Game page will use a Python interpreter as opposed to a C++ compiler.