

# Day 1 – HTTP GET

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On the Solar System Geek home page there are links for three different calculation tools to "Explore the Solar System". Implement these calculators as specified below and modify the home page links to point to your implementations.

## Alien Weight Calculator

Given a weight on earth, this calculator should compute the equivalent weight on another planet in the solar system. Use the [gravity of the alien planet](#) compared to earth gravity to calculate the alien weight.

### Input

The screenshot shows the Solar System Geek homepage with a dark background. At the top left is a logo of a cartoon alien with a large head and small body, standing next to a stylized solar system diagram. To the right of the logo, the text "Solar System Geek" is displayed, with "Solar System" in yellow and "Geek" in white. Below this, the heading "The Solar System" is shown in white. A detailed paragraph about the formation of the solar system follows. At the bottom of the main content area, there is a navigation bar with five buttons: "Alien Age", "Alien Weight", "Alien Travel Time", "Space Forum", and "Space Store". The "Alien Weight" button is highlighted with a blue border. Below the navigation bar is a white rectangular form titled "Alien Weight Calculator" in bold black text. The form contains two input fields: "Choose a planet" with a dropdown menu set to "Saturn" and "Enter your Earth weight" with a text input field containing "158". Below these fields is a "Calculate Weight" button. The rest of the page is a plain black background.

### Output



## Solar System Geek

### The Solar System

The Solar System formed 4.6 billion years ago from the gravitational collapse of a giant interstellar molecular cloud. The vast majority of the system's mass is in the Sun, with most of the remaining mass contained in Jupiter. The four smaller inner planets, Mercury, Venus, Earth and Mars, are terrestrial planets, being primarily composed of rock and metal. The four outer planets are giant planets, being substantially more massive than the terrestrials. The two largest, Jupiter and Saturn, are gas giants, being composed mainly of hydrogen and helium; the two outermost planets, Uranus and Neptune, are ice giants, being composed largely of substances with relatively high melting points compared with hydrogen and helium, called ices, such as water, ammonia and methane. All planets have almost circular orbits that lie within a nearly flat disc called the ecliptic.

#### Explore The Solar System

*Use these state of the art web applications to learn more about the solar system!*

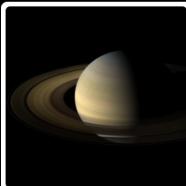
[Alien Age](#)

[Alien Weight](#)

[Alien Travel Time](#)

[Space Forum](#)

[Space Store](#)



If you are 155 lbs on planet Earth, you would weigh 175.15 lbs on Saturn.

# Alien Age Calculator

Given an age in Earth years, this calculator should compute the equivalent age in years for another planet in the solar system.

## Input

The screenshot shows a dark-themed website for "Solar System Geek". At the top left is a cartoon character of a geeky alien with glasses and a lightbulb-like head. To its right is the text "Solar System Geek". Below this is a section titled "The Solar System" with a detailed description of the solar system's formation and planetary classification. A navigation bar at the bottom of this section includes links for "Explore The Solar System", "Alien Age", "Alien Weight", "Alien Travel Time", "Space Forum", and "Space Store". The main content area is a white box titled "Alien Age Calculator". It contains two input fields: "Choose a planet" with a dropdown menu set to "Jupiter" and "Enter your Earth age" with a text input field containing the number "36". Below these is a "Calculate Age" button.

## Output



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[Space Store](#)



If you are 36 years old on planet Earth, then you are 3.03 Jupiter years old.

# Alien Travel Calculator

Given a destination planet, mode of transportation, and age of the traveler at the start of the journey, this calculator should compute the total travel time and age of the traveler upon arrival. The calculation should be based on the [average distance between planets in the solar system](#) and the following table of modes of transportation and their speeds:

Mode of Transport	Speed
Walking	3mph
Car	100mph
Bullet Train	200mph
Boeing 747	570mph
Concorde	1350mph

## Input

The screenshot shows a dark-themed website for "Solar System Geek". At the top left is a logo of a cartoon alien with orange hair and a green suit, standing next to a small solar system diagram. The main title "Solar System Geek" is displayed prominently in yellow. Below the title, a section titled "The Solar System" contains a detailed paragraph about the formation and structure of the solar system. A sub-section "Explore The Solar System" with a sub-instruction "Use these state of the art web applications to learn more about the solar system!" is also present. At the bottom of the page is a large white rectangular box containing the "Alien Travel Calculator". This form includes fields for "Choose a planet" (set to Neptune), "Choose a mode of transport" (set to Boeing 747), and "Enter your Earth age" (set to 27). A "Calculate Travel Time" button is located at the bottom right of the form.

# Output

The screenshot shows a dark-themed website for "Solar System Geek". At the top left is a logo featuring a cartoon character with a large head and a small body, looking at a small planet. To the right of the logo, the text "Solar System Geek" is displayed, with "Solar System" in a smaller font above "Geek". Below this, the title "The Solar System" is centered. A detailed paragraph about the formation and composition of the solar system follows. Underneath is a section titled "Explore The Solar System" with a sub-instruction: "Use these state of the art web applications to learn more about the solar system!". Below this are five buttons: "Alien Age", "Alien Weight", "Alien Travel Time", "Space Forum", and "Space Store". The main content area features a large image of the planet Neptune on the left and text on the right: "Traveling by boeing 747 you will reach Neptune in 541.53 years. You will be 568.53 years old.".

# Day 2 – HTTP POST

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You are developing an online bulletin board web component for SSGeek. It is a general forum posting, so anyone is welcome to join and post without needing to login.

The feature has two requirements:

1. Provide a page that allows a site user to submit a new post to the bulletin board
2. Provide a page to view all posts on the bulletin board

A database script([database/ssgeek.sql](#)), an interface ([ForumDAO](#)), and a data access class (for you to implement) has been provided.

**Your implementation must apply dependency injection and should be unit tested.**

## Submitting a New Post

Users can navigate to a page on the web application that provides them with a form to submit a new post for a bulletin board.

The page will provide the user with the form to submit:

- Username
- Subject
- Message



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[Alien Weight](#)

[Alien Travel Time](#)

[Space Forum](#)

[Space Store](#)

#### New Geek Post

Username

Subject

Message

## Viewing a Post

The View Posts page allows users the ability to see any posts that were previously submitted to the web application.

The page should display to the user all of the prior posts. You can use any type of layout that you prefer.



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#### Solar System Geek Forum

[Post a Message](#)

##### Moon Sighting?

by J Lovell on 6/16/2017 at 1:11:52

Did anyone see the moon last night?

##### I Saw Pluto!

by ccastelaz on 10/23/2016 at 9:05:12

Pluto came into view on my telescope last night!

##### Apollo 13

by JLovell on 10/23/2016 at 8:57:48

Was that movie for real??

##### Aliens on the Moon

by Neil A. on 10/23/2016 at 8:20:33

Did you know that Neil A. is Alien spelled backwards?

##### Favorite Movie?

by t\_hanks on 10/23/2016 at 8:20:33

My favorite space movie is Armageddon

# BONUS

Create a form that allows website visitors to sign up to win a prize.

Each visitor needs to provide their name, and answer a space trivia question.

Leverage HTTP POST and the Post–Redirect–Get pattern to

1. Show the user the form
2. Have the user post their answer
3. Redirect the user to the correct action based on the input

The screenshot shows a web page titled "Solar System Geek". The header features a cartoon illustration of a person looking at a solar system diagram with planets orbiting the sun. Below the header, the title "The Solar System" is displayed. A detailed paragraph about the formation and structure of the solar system follows. A section titled "Explore The Solar System" contains the text "Use these state of the art web applications to learn more about the solar system!" and five buttons: "Alien Age", "Alien Weight", "Alien Travel Time", "Space Forum", and "Space Store". The main content area is a white box titled "Space Geek Trivia". It contains a text input field labeled "Enter your name", a question "Who first walked on the moon?", and three radio buttons for "Tom Hanks", "Jim Lovell", and "Neil Armstrong". A "Submit!" button is located below the radio buttons. The entire page has a black background.

Based on the user's answer, they will see a Correct or Incorrect page letting them know the outcome.



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**Correct!**

That's right **Josh Tucholski!** Neil Armstrong first stepped on the moon on July 20, 1969. You know your space history!



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**Incorrect!**

That's incorrect! Don't you know your space trivia? You should spend more time studying instead of watching fake space movies **Josh Tucholski!**

# Day 3 – SESSION

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You'll be creating a shopping cart that allows your website visitor the ability to view products, select a product, and add it to their shopping cart.

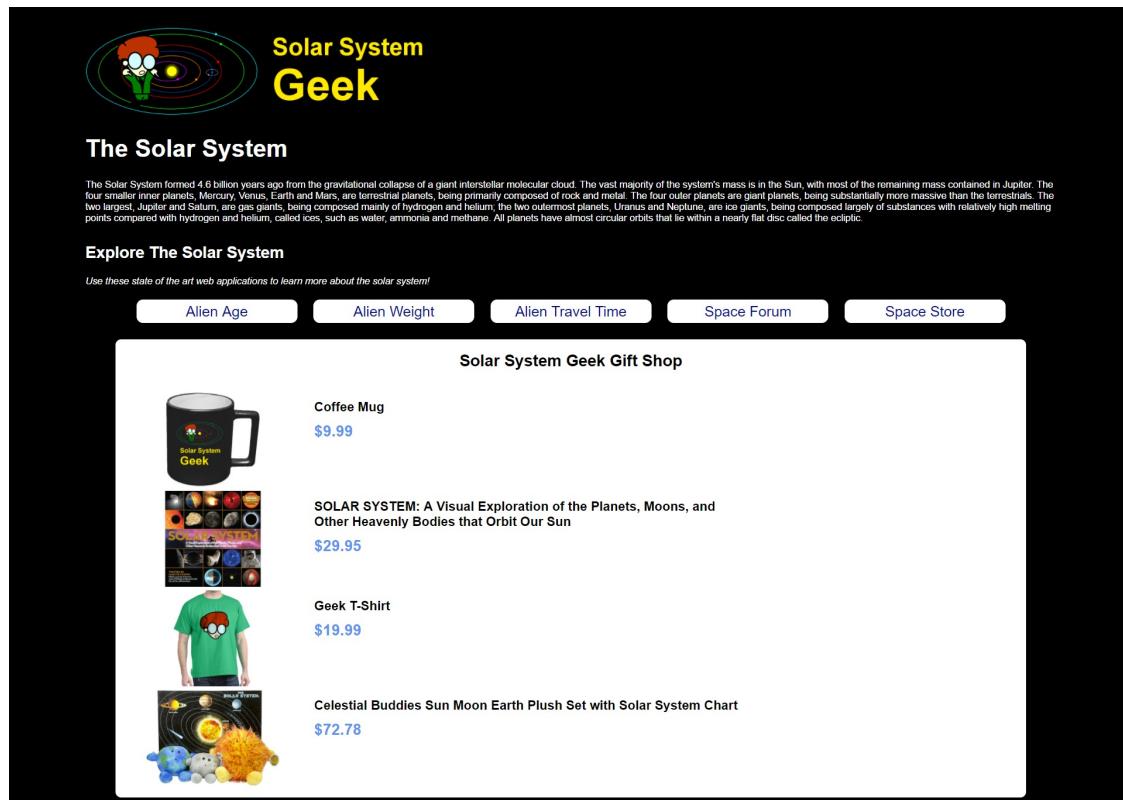
**You should unit test when possible**

## Product List Page

The product listing page displays all of the inventory that the SSGeek shop contains.

### Requirements

- When the user clicks on the image of a product they are navigated to the **Product Detail** page
- Use the URL pattern **/shoppingCart/index**

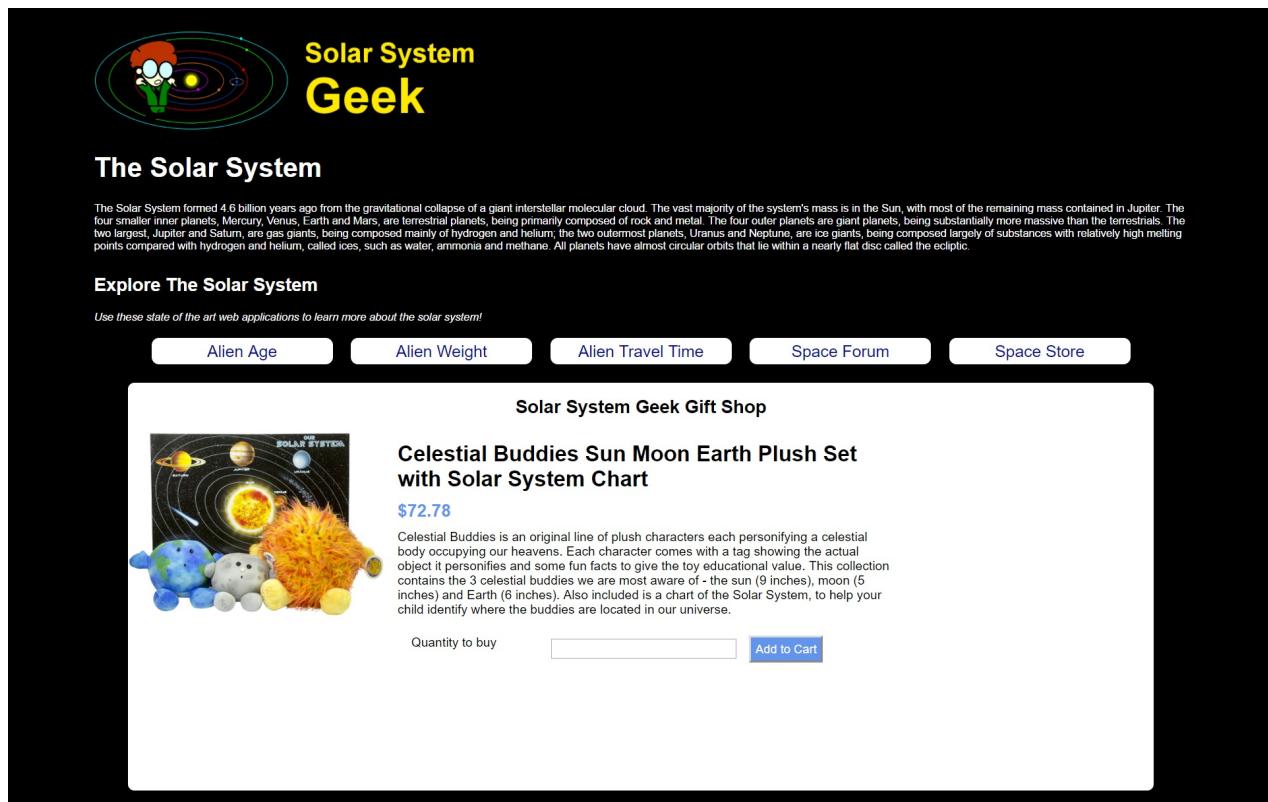


## Product Detail Page

The product detail page displays the data for a specific product and allows users to add products to their shopping cart.

## Requirements

- When the user enters a quantity into the textbox and *presses Enter* or *presses Add to Cart* the product is added to their shopping cart
- After the user adds an item to their shopping cart, they are redirected to the View Cart page
- The View Cart page should have a message telling them that a product was successfully added or changed in their cart using flash data
- Use the URL pattern `/shoppingCart/detail/{product-id}`



## View Shopping Cart

The View Shopping Cart page displays all of the items that are in the visitor's shopping cart to purchase.

## Requirements

- Use the URL pattern /shoppingCart/view



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Solar System Geek Gift Shop				
Name	Price	Qty.	Total	
	\$29.95	53	\$1,587.35	
	\$72.78	2	\$145.56	
<b>Grand Total \$1,732.91</b>				<a href="#">Check out</a>