INFO 5100: Group Assignment 2

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Not All Shipwrecks Are Caused By Moby Dick!

Introduction

For a long time now, shipwrecks have fascinated the human kind. Associated with history, riches and untold stories, shipwrecks hold a certain air of mystery that has captivated everyone, the world over. But not all shipwrecks are due to unwieldy storms, unlucky albatross or enormous sperm whales. Many shipwrecks in the history, are indeed intentional acts of war!

UNESCO estimates that, over 3 million shipwrecks, some thousands of years old, lie in the world's oceans. This project aims to show a subset of these shipwrecks, the ones that call the sea beds of the Pacific and the Atlantic, as their final resting place

Data

Source

Our datasets are primarily derived from Wikipedia. Here is a description of our dataset:

As Wikipedia has no API we scraped the data using python and the *Beatuifulsoup* library. For each Wikipedia page we had to write a separate python script as the html structure in order to use BeautifulSoup was very different (The python code is part of our zip file)

DataSet 1: present in shipwrecksDataset

The csv contains the following data for each shipwreck in the Pacific and the Atlantic oceans:

- **Area**: Pacific / Atlantic
- **Sea**: Which sea of the Pacific / Atlantic ocean
- **Ship Name**
- **Date**: the final date in which the ship was declared as shipwrecked. For ex: If the ship was attacked over a period of n days, the nth day is recorded as the shipwreck date
- **Year:** the year in which the shipwreck happened. This is derived from the Date column, and exists separately for ease of use in the code
- **Cause**: the cause of the shipwreck
- **Notes:** Wikipedia provided us with a short excerpt of details on each shipwrecks. This, along with the individual article, helped us form our Dataset 2
- **Latitude and Longitude:** the last resting place of the shipwreck, used to precisely position the pin on the map

DataSet 2: present in shipwrecksDataset

From the notes section in Wikipedia, we realized that many shipwrecks were intentional, while a few were accidental / unintentional. Hence, we read through the Wikipedia article for each of the ships, and populated the Reason column. (The notes column from Dataset 1 helped us in many cases. However, in some cases, it was a bit misleading. For example, where the notes simply indicated that the ship was torpedoed, which would mean "Intentional", there was a case where the ship was accidentally hit by its own torpedo, and hence it was "Unintentional")

- **Reason:** Different from cause, this specifies whether the shipwreck was due to intentional or unintentional reasons

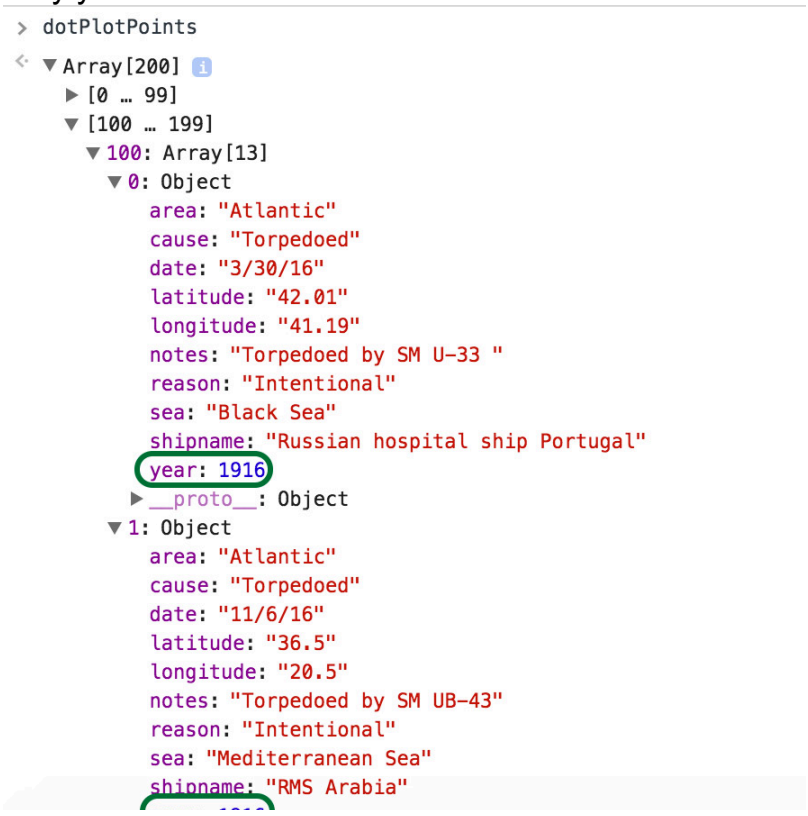
Cleanup of Data
From our final dataset, we removed those rows of shipwreck details, which did not have latitude and longitude information. This is to ensure that all the shipwreck data that we collected could be plotted on the map

Note: Statistics show that there are over 3 million shipwrecks in the world's oceans. However, for this project, we set our scope on two oceans only.

Variables in our visualization

- **Points:** Array of json objects that contains the following details about each shipwreck
  - Ship Name
  - Area
  - Sea
  - Cause
  - Date
  - Year
  - Notes
  - Reason
  - Latitude
  - Longitude

- **Area Points:** A filtered subset of the Points array, based on "Pacific / Atlantic" area
- **Cause Points:** A filtered subset of the Points array, based on "Sunk / Torpedoed / Ran aground / Others"
- **Reason Points:** A filtered subset of the Points array, based on "Intentional / Unintentional"
- **dotPlotPoints:** Array of array of objects, where each row contains an array of "Points" grouped by year



Our Story: Mapping data to Visual Elements

We were interested in getting an overview of the shipwrecks that lie in the Pacific and the Atlantic oceans. Hence, during the initial loading of our visualization, we plotted all the shipwrecks in both the oceans

Next, we added radio buttons that would allow us to explore the shipwrecks by the following:

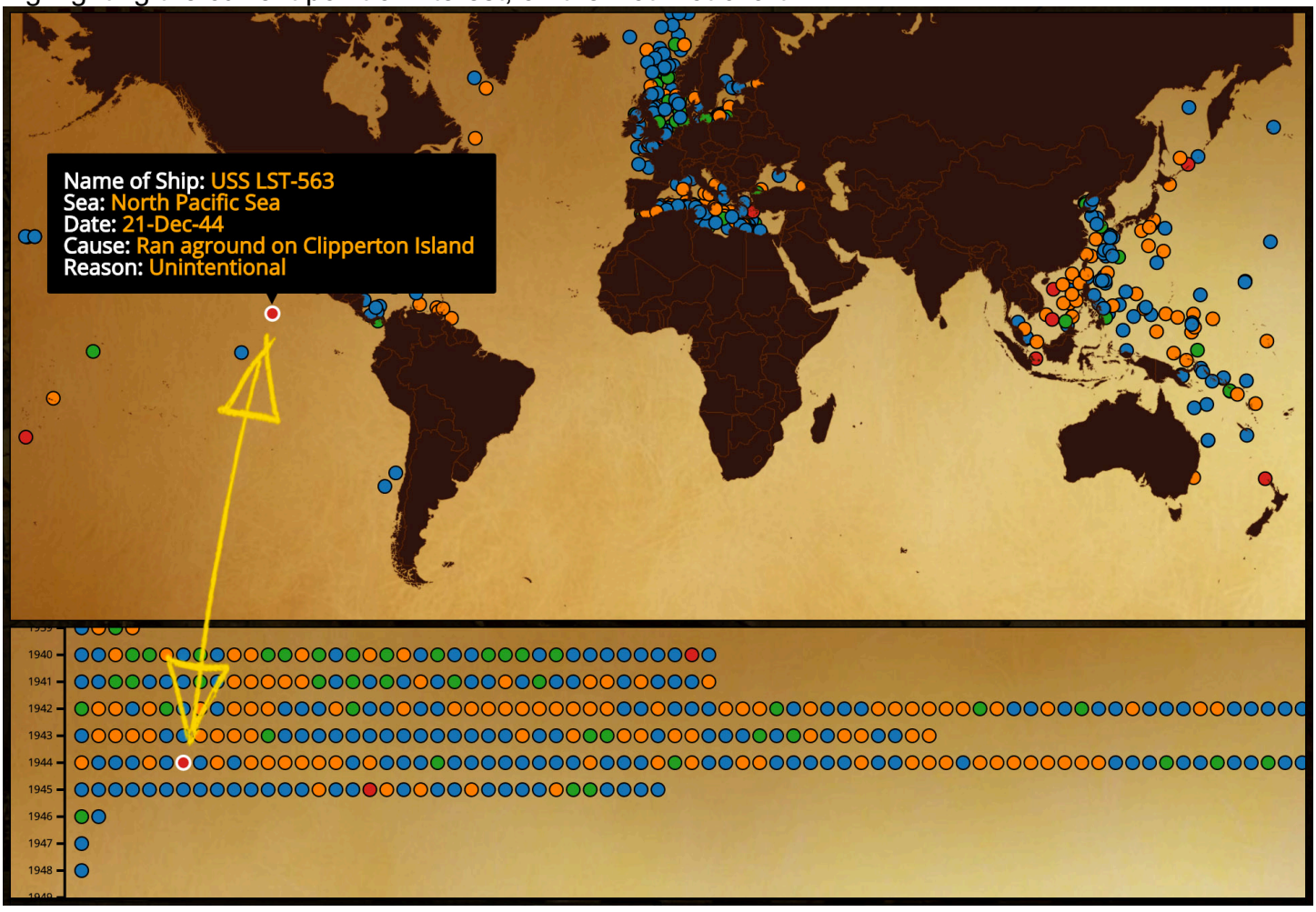
- By Ocean (Pacific / Atlantic)
- By Intention (Intentional / Accidental)
- By Cause (Sunk / Ran aground / Torpedoed / Others*)

*Others: We grouped the following causes under Others, since there were too few data points for the other causes, and we wanted to collate them all under one category. The different causes collated under “Others” are:

- Collided
- Lost at sea
- Rammed
- Scuttled
- Struck a mine
- Struck a shoal
- Wrecked

Next, we show the shipwreck details on a tool-tip once we hover over each point that represents it:

Following this, we link this hover-over action, to the Dot Plot Chart below the map. We do this by highlighting the current point of interest, on the Dot Plot chart:



What was surprising

Our initial expectation was that; majority of the shipwrecks would be due to forces of Nature. In fact, we thought that storms, maelstroms, enormous marine life would cause as much damage to ships as

human interventions. We were surprised that forces of nature constituted to very few shipwrecks when compared to intentional acts of war.

What we did notice, after we drew this conclusion was that, majority of the intentional shipwrecks were during the World Wars I & II. This, indeed makes sense, but for the reason that, we as humans could wreck more havoc than nature!

References

- https://en.wikipedia.org/wiki/List_of_shipwrecks_in_the_Pacific_Ocean
- https://en.wikipedia.org/wiki/List_of_shipwrecks_in_the_Atlantic_Ocean
- https://jawbone.com/blog/university-students-sleep/
- https://bl.ocks.org/mbostock/eec4a6cda2f573574a11