

Title: MM 802 Visualization Mini-Project

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Project Title: Report on World Happiness Index

I. Abstract

It's an innovative idea to incorporate interactive data visualization elements in a web application, as they decipher the textual data into a more powerful human perception of “visualization”. Such websites attract more online users as it becomes convenient for them to comprehend the data. The current websites address the statistical data of “happiness index of world wide regions” in a textual format; which more or less resembles a long document of a conducted survey. However, would the users invest so much time on reading an entire article to just know the happiness index of their region? Moreover, are the existing websites not just providing a web application scenario by simply embedding textual content? Given the essence required for a problem of this calibre, makes it absolutely necessary to incorporate maps, graphs, calendars and search engines for making the website more interactive.

II. Introduction

[1.] Application Domain: Our application domain states the happiness index of each country, continent and performs comparative analysis among them. We channelize this data using several visualization mediums (map, graph, calendar, search engine).

[2.] Questions of Interest:

- (a) What is the happiness index of each country for the latest year (2017 in our case)?
- (b) What is the global rank of each country for the latest year?
- (c) What is the progress report (rank and happiness score) for North American continent for the years 2015, 2016 and 2017?
- (d) What factors contributed in making North America happy in 2016?
- (e) What is the progress done by the top three countries of 2017 in the past three years?
- (f) What is the progress done by the bottom three countries of 2017 in the past three years?

[3.] Dataset Used: There are three csvs provided by this dataset: 2017.csv, 2016.csv and 2015.csv.

<https://www.kaggle.com/unsdsn/world-happiness>

[4.] Previous work on this domain: <http://worldhappiness.report/>

We were inspired to choose our application domain by referring to this site. However, since this site does not have any visualization aspect, we planned on adding it in our project to make it interactive by referring to <https://canvasjs.com/javascript-charts/multi-series-spline-chart/>.

III. Project Status

We have accomplished the plan that we had crafted for this mini-project. We explain a few things that we may work in near future in the “Concluding Remarks Section”.

Team Member's Contribution

Abdul Malek: Worked on HTML and CSS; choosing application domain

Gauravi Chavan: Worked on Visualization aspects using d3.js and jquery; and writing report.

IV. Development Environment

We have downloaded Sublime editor for editing the code (<https://www.sublimetext.com/3>) and d3.js library for data visualization functions. We used html, css, jquery, bootstrap and chat box plugin for developing this application. This application is designed for desktop view.

V. Development Work

d3.js library: It is a JavaScript library for producing dynamic, interactive data visualizations in web browsers. We used it for implementing graphs in HTML and CSS standards.

We have explained how to use this project in the README file.

Our web pages have the following components (Results):

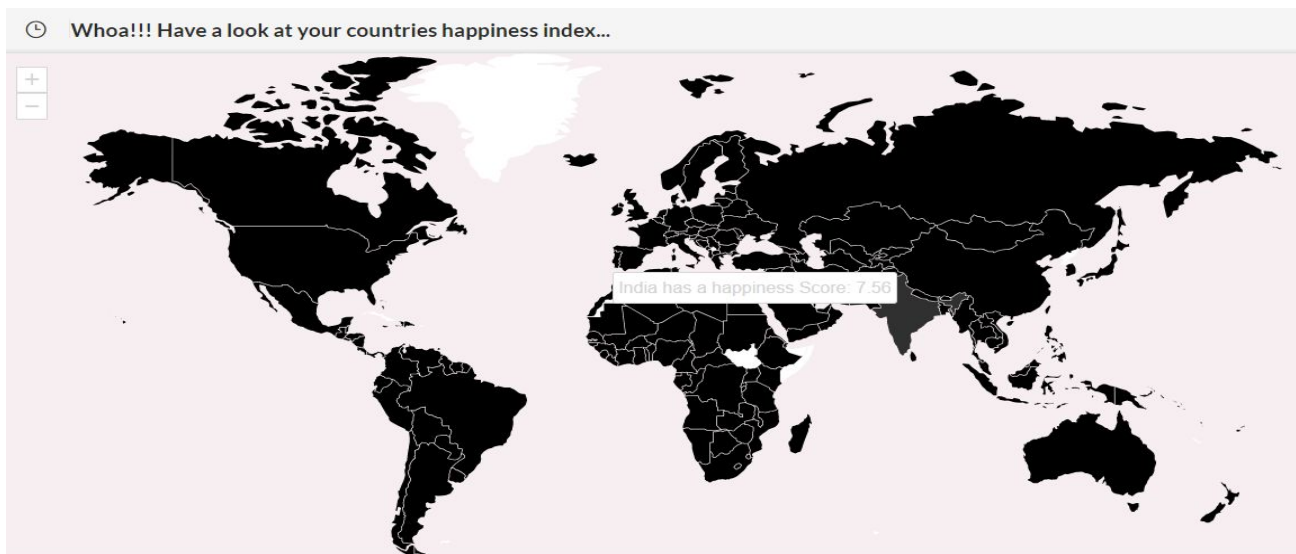


Our workflow has three main pages 'Dashboard', 'Charts', 'Statistics'. We created a toggle navigation side panel for it.

On clicking the thumbnail the side panel will disappear to give a full screen view. On re-clicking it would appear again.

[1] Dashboard Page:

We use a **vector map** to display the world map. On hovering over a country, a popup with the happiness of that country (2017) will appear as under. This has been implemented using jquery, html and css.



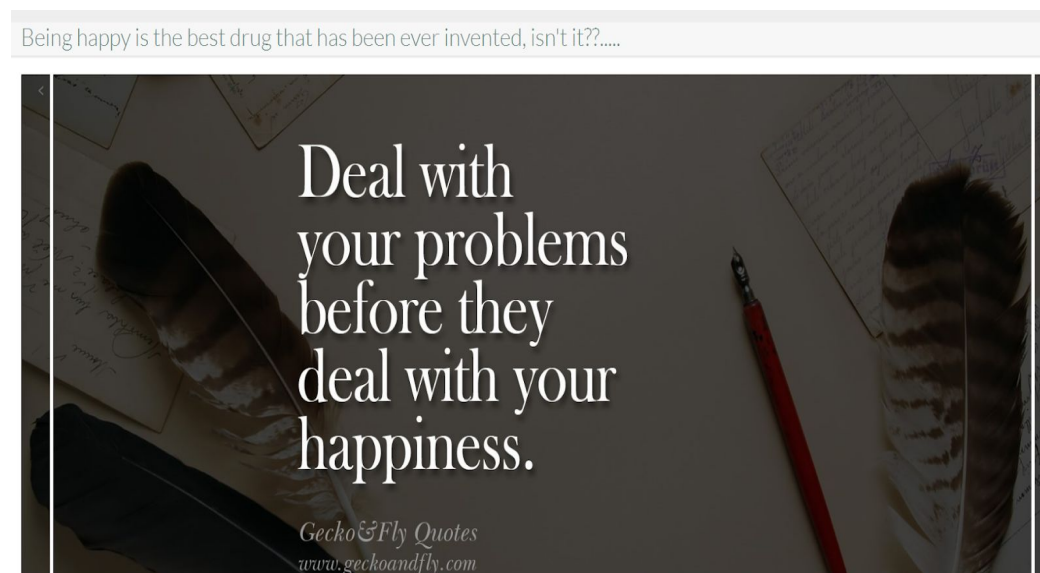
Find 2k17's global ranking here....

Rank	Country
1	Norway
2	Denmark
3	Iceland
4	Switzerland
5	Finland
6	Netherlands
7	Canada
8	New Zealand

Find 2k17's global ranking here....

Rank	Country
7	Canada

We have a **search engine** to find the global rank of any country in 2017. User may use this if he does not wish to scroll down the list. This has been implemented using jquery, html and css.



We have created **horizontal slider** for happiness theme images. On clicking on to the right section of the image we move to the next image, whereas on clicking left section of the image we move to the previous one.

Quotes that would brighten up your day...

Contact Us

Address: Little Lonsdale St, Edmonton
 Telephone: 780 578 59 45 416
 Fax: 123 456 789

52k FOLLOWERS

486 FEEDS

1562k

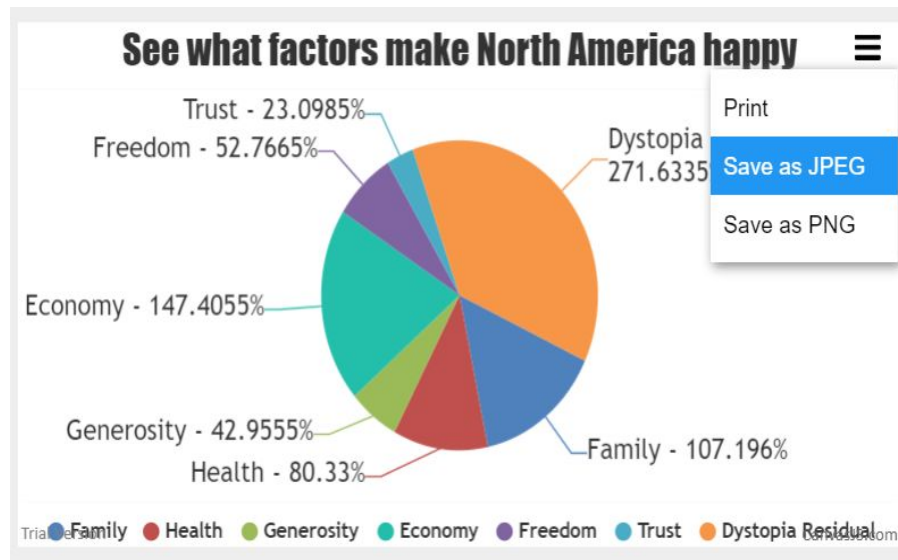
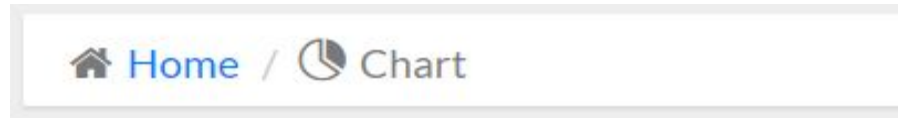
2562 Please leave a message

Towards the end section we have an **auto slider** that shows the quotes of the day on happiness. We developed this using jquery, html and css. We then show the contact details. We have social

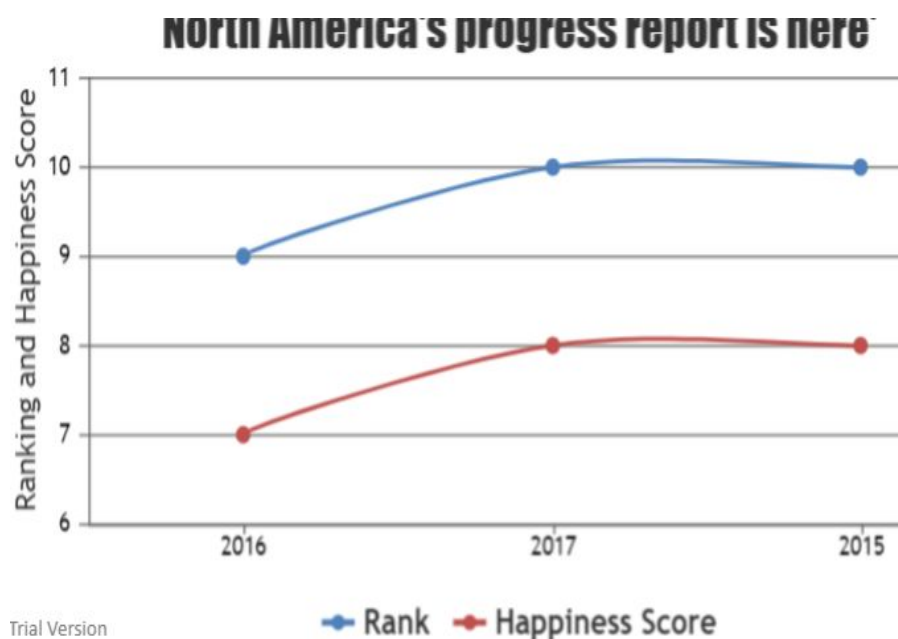
media links too. On clicking them, the user will be redirected to the happiness page for that application. For example on clicking facebook icon he will be directed to facebook's happiness page.

[2] Charts Page:

Towards the beginning of every page we display the path that the user has been redirected to, so that he can go back to the home page without using the side panel.



We use jquery and d3.js library here to display the graph. We seek data from 2016.csv. We access the row elements for the column that has value 'North America' under region. We calculate the average of family, freedom, trust, etc. elements, compute average of all these respective elements and finally compute their percentage and plot them on the graph for each year.



We use jquery and d3.js library here to display the graph. We seek data from 2017.csv, 2016.csv and 2015.csv. We access the row elements for the column that has value 'North America' under region. We calculate the average and plot it on the graph for each year.

We have used an accordion for displaying the frequently asked questions using html, css and jquery. On clicking '+' we expand the window and on clicking '-' we contract it.

Frequently Asked Questions

Does this website predict the countries that would perform well in the future? -

No, this website presents just the past records. We hope to serve your request in near future

Does your website not give average index and factors contributing to the happiness score of all continents? -

Although we are working on customizing visualized graphs for all the continents, our priority right now is North America.

Do you have any forum or chat box for publishing comments? -

We plan on providing an online forum or chat box for enthusiasts of common interests to interact with each other

We have made a calendar using javascript where on clicking a date, a pop up prompts the user to enter the subject, start and end time and save the event (as shown under)

ite events that would make you happy...

March, 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
24	25	26	27	28	1 Mar	2
3	4	5		7	8	9
10	11	12		14	15	16
17	18	19		21	22	23
24	25	26		28	29	30
31	1 Apr	2	3	4	5	6

Appointment

Subject
Yoga

Start Time
5:30am

End Time
12:00am

Save Cancel

Appointment

Subject
Yoga

Start Time
5:30am

End Time
12:00am

Save Cancel

Finally the event is saved and highlighted as under:

ite events that would make you happy...

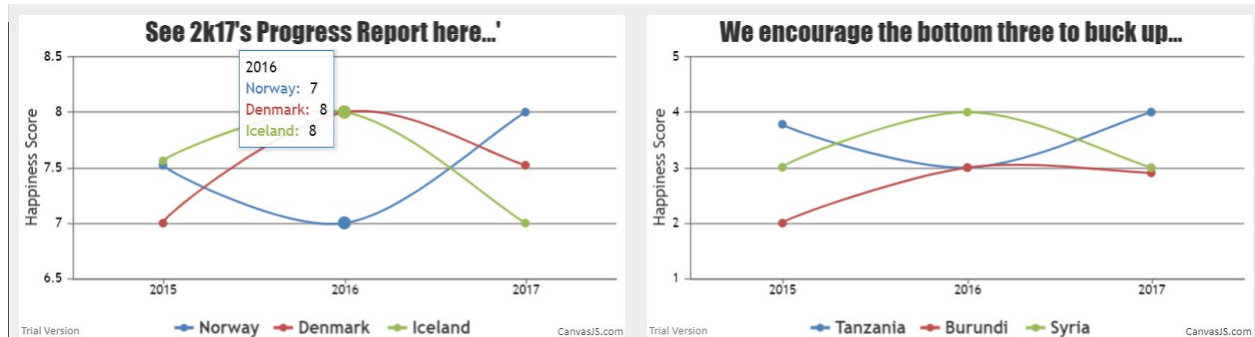
March, 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1 Apr	2	3	4	5	6

05:00 AM Yoga

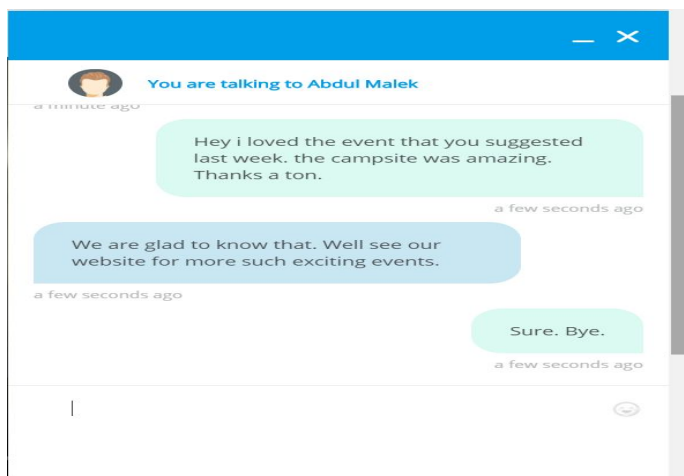
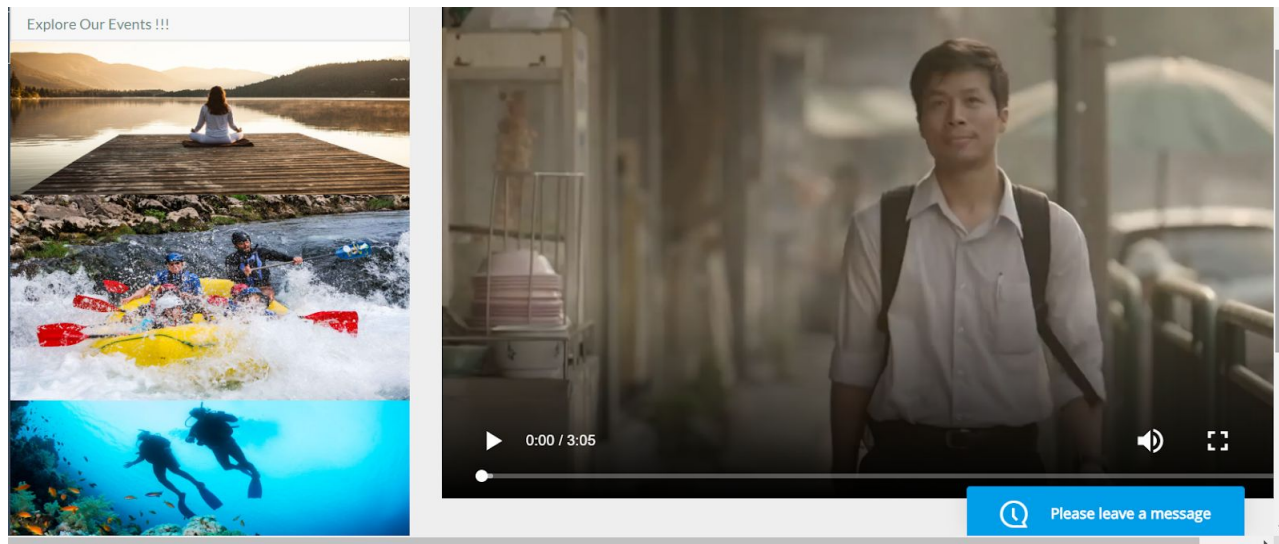
[3] Statistics Page:

Here, we display graphs for top and bottom three countries of 2017 and demonstrate their progress in last three years.



We use jquery and d3.js library here to display the graph. We seek data from 2017.csv, 2016.csv and 2015.csv. We access the row elements for the column that has value 'Norway', 'Denmark' and 'Iceland' under 'Country' from each csv. We retrieve the happiness index and plot it on the graph for each year.

Finally, towards the end of this page we display a marquee of events (meditation, adventure sports) that would assure happiness to users and also put a motivational video on happiness.



We have added a plugin for creating a chat box by userlike. We have shared details on this chat box in the future scope section.

Important Note: If in case the video, images and graphs are not visible in chrome browser(preferred), please check it on microsoft edge explorer or firefox. In my local I can see it in localhost on all browsers. I also put it on server and checked; it works fine there as well. If your browser does not support the video type that we have put then please let me know, we shall show you on our local.

VI. Concluding Remarks

Our goal was to make it convenient for the users to comprehend the data by developing a feel good visualization website. We learnt how to access data from csv files and make good visualization elements like map, graphs, search engine, calendars, etc. We learnt querying the data using jquery logic and d3.js library. We also learnt html, css for improving the overall look and feel of our website. We are certain to develop a good website embedded with a lot more features in the future using these concepts, when we have ample time in future.

Possible Future Work

1. For now we have used a plugin for chat-box, however, we plan on using jquery and php in future to create a simple chat box. For now I know how to send message from clients side.
2. We plan on creating a comment box where users can publish quotes or their thoughts. This too would be done using jquery and php.
3. A news broadcast related to happiness sector and a side panel with scrolling multiple videos like in youtube could be added.
4. Customized charts based on user's inputs can be generated and displayed. For example if the user enters factors contributing to happiness like family, generosity and health, and his county then he would get a pie chart only for his selected country and his chosen factors.

References

- [1] <https://canvasjs.com/javascript-charts/multi-series-spline-chart/>
- [2] <https://www.w3schools.com/>
- [3] <https://www.javatpoint.com/>