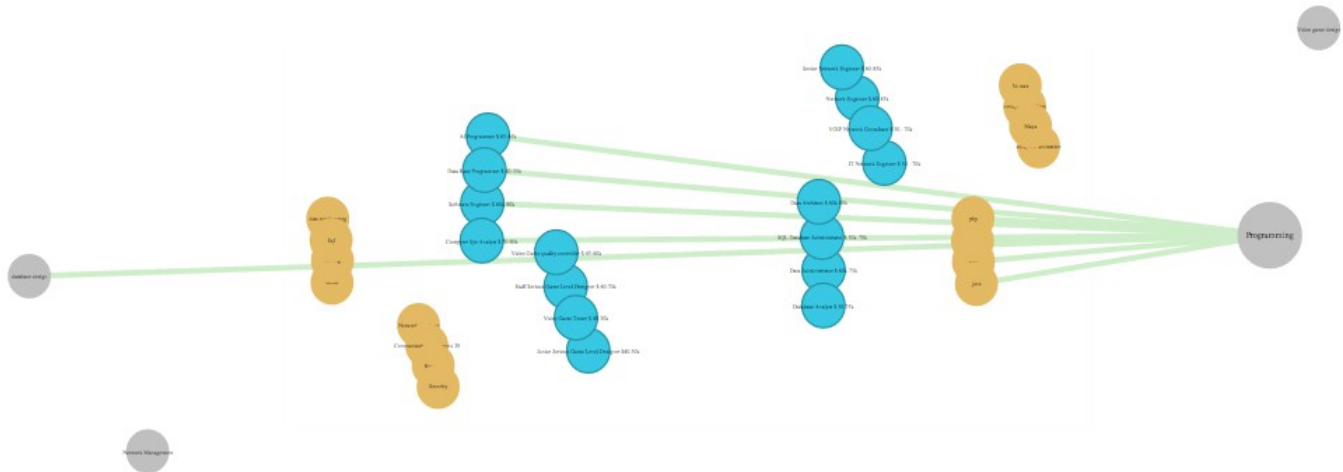


Career Guidance in Computer Science using data visualization and d3.js

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ABSTRACT

I data visualization displays the various career options in computer science branch. This visualization is useful for those candidates who are in there golden years of career means doing undergraduate course, masters course or PhD course in computer science. The visualization shows the main branches in the computer science. Also, the interdependency between them. There is also connection between main branches in the computer science and job post.

If a candidate want to know which branch of computer science will take him to which job post, he will only hover on the particular node and the visualization will display all the job post nodes connected with particular branch of computer science.

The visualization is dynamic in nature. Users can see the transition at the same time of clicking and hovering. The various interaction nodes are using hovering over the node, simply clicking on the node and zoom-in and zoom-out.

INTRODUCTION

The visualization mainly consist of 3 things

- 1) Nodes for different branches of the computer science

The nodes at the outer part of the visualization are the core area in the field of computer science, which consist of Programming, Database design, Computer Graphics etc. The nodes just near to them are subnodes that are related with main branches of computer science. For example, on hovering on Programming, it will show sub nodes like c++, java, pascal etc. Also, it will show connection with all jobs titles related to Programming.

2) Nodes for various job post

In this type of node, particular job titles related to particular company are shown. Also, The connection for all branches related to particular job title is also shown.

3) Links

the links are shown only when we hover over the particular node.

Motivation

Sometimes it may happens that candidate who want to pursue career in computer science choose wrong field of work (Fields like Networking, Database, Web development, front-end design, robotics, embedded system and artificial intelligence) due to voluminous information available on internet that makes his/her decision complicated and later-on make a regret. Also, there are many job post available for pursue career in computer science.

If they are provided with all the options available for them inside the Computer Science branch along with necessary steps to be taken (like start learning .net, visual studio for career in front-end design) in graphically interactive environment then it will be very useful application for them.

Background and Related Work

1) My Data visualization Project is concerned with selecting something out of pool of things hence it is some what related with the data visualization project by Global Agenda Councils Constellation created by Daniel McLaren [1]. In this project, Members of each council were asked which other councils they would benefit from interacting with. This visualization shows a map of the strongest collective responses.

2) In My project, I want to show some information on the separate page, so that more information can be displayed if space is not available. The Data visualization project term ranking for german news Dominik Henn created by Gnutiez [3] is something related to my project. For Example, In c++ sub node of Programming node I am providing a link that will take me on the page that will show additional information if available.[]

METHOD

Data & Visualization Design

1. Collect all information data in tabular format / Excel sheet
The Resources for the learning the subjects like name of books, name of certification exams, youtube videos links etc. and Name and job description of the post in a company will be collected and put all the things in Excel sheet paper.
2. Develop the visualization
Using d3.js by using some layouts like tree layout, force layout, packed layout etc. HTML5, CSS, JavaScript (At this stage I am not sure about which layout to choose)

Proposed Graphic Type

Graphic type to be used is Network form in which nodes are linked together by a link. As, My topic consists of many entities and there connections. Hence, Network form is necessary for these types of visualizations. It will look like circular nodes connected by the arrows

Proposed Interaction

Interaction is incorporated.....

By Hovering over the node

Just by placing the mouse cursor on any node will shows link connections to every node that attached to it. For example, by hovering on the Programming and Network Management, Only those nodes are connected in intense color and other part of visualization is detached.

By clicking on nodes

The user can also directly click on the nodes and it will take him to other resources related with the particular node. For example, by clicking on node for “php” the new window will be opened related with resources of php.

CONCLUSION

Impact

The biggest impact of the project is easy understanding of the information which is available on the internet but in scatter manner. While in the visualization we can see all related data with mere click and hovering over the objects. Also, we can arrange our information in the form of nodes and links which is now a days very famous among the productivity app design in ios and android environment.

Future Research

- 1) I can add for all other fields apart from computer Science like MBA, Electrical Engineering etc.
- 2) I can add various departments of company like management department. At this stage we have only technical department related to computer Science only.
- 3) I can also add separate html pages or pdf pages for every sub node of main field of computer science.
- 4) I can add size of the node as the function of number of jobs that are available within particular branch of the computer science.

REFERENCES

1. **Global Agenda Councils Constellation** created by Daniel McLaren
http://apps.asterisq.com/gac_constellation/
2. **LastFM Data visualization** created by Gerard Grootebroek, Netherlands
<http://www.visualizing.org/full-screen/50397>
3. **Term ranking for german news Dominik Henn** created by Gnutiez ,Berlin, BE, Germany
<http://www.visualizing.org/full-screen/54561>

USEFUL LINKS

1. d3js.org
2. www.visualizing.org
3. stackoverflow.com
4. w3schools.com
5. jsfiddle.net
6. github.com
7. www.gideongoldin.com/teaching/cis602.html