OVERVIEW

Barb E. Dahl works as an analyst in Whitmore 7705. Over the summer, she has spent hours drafting surveys which will be used to gather useful information about the school of Computer Science at UMASS-Amherst. She hopes to collect and then analyze this valuable information. The fall semester begins and several students, faculty, alumni and prospective students fill out all kinds of surveys that are then stacked up in her office. One morning she walks in and is overwhelmed to find heaps of completed surveys. She wishes to sort and analyze all this data but has no O(nlogn) algorithm (efficient way) to do it! Unfortunately, everyone isn't smart enough to use heap sort!

On the other hand, Gordon Harold is a senior at Lakeside high school. He is a computer whiz kid, has a 4.0 and a 2370 on his SAT. After spending months on the internet, he is having a tough time figuring out whether or not UMass-Amherst is the best place for him. He has all kinds of selection criteria - He wants to see the average SAT scores of accepted freshmen, the placement rate of graduating seniors and the percentage of faculty involved in A.I. research.

Well, Barb E. Dahl has all the information Gordon wants, but it's all stuffed into that big locker in her office because she has no efficient way to compile, analyze or publish her results. Gordon is not happy, Barb is stressed and UMass just lost the future Bill Gates!

This website aims to help both these kinds of people. In doing so it also aims at attracting deserving prospective students to our world class CS program. Its purpose is to automate the process of big data(survey) analysis and to allow prospective students and others interested in our program to compare and view information that is useful in the process of decision making about colleges and majors. Students, faculty and alumni will be requested to fill out online surveys which will be available on this web site. Users, primarily prospective students and computer science outreach staff will then be able to view bar graphs, scatter plots and other interesting graphs that represent information gathered from these surveys. Each question in the surveys will have representative graphs and figures which will be available dynamically and will display statistical information about how other people answered that particular question. Users will then be able to view these figures instantly by the click of a button.

The following pages go into further detail about scenarios, non-goals, screen by screen views and flowcharts that illustrate the design and purpose of this web application..

SCENARIOS

The system will be taking and storing data of surveys from students and professors. This is a sample of various scenarios that our application may be subjected to.

Scenario 1: Potential student visits website to view School of Computer Science statistics on job placement

Description
Suppose prospective students are researching UMass Amherst on the web. They already have a basic understanding of the quality of the school. Our system-created charts and diagrams based on surveys from former students and current students help summarize what its like to be a student here. Surveys for current students are about what they like about the school and what they don't. Surveys for former students are about if they got a job related to their major.

Stimulus
User access Statistics link. Queries for job placements statistics.

Success Conditions
Displays visualized representation of job placement statistics as well as related numbers.

Failure Conditions
No statistics found from database. Notify user that data is not available.

Scenario 2: Professor wants to access course evaluation data

Description
Before professors asked students to course evaluation in the end of semester by using SCANTRON. It is slow, not convenient and wastes paper. However, the survey system will change that. Professors can use the system to improve courses. Professors could ask students to take online surveys in the beginning of semester, in the middle of semester and in the end by using our system. According to diagrams, professors understand students' strength and weakness. They could realize students' struggles and assist them before the end of semester. They will figure out a better strategy to improve courses.

Stimulus
Professor logs in with privileged account. Queries survey group.

Success Conditions
Verify account privileges. Display survey data.
Failure Conditions
-The account is not authorized to view survey data
Professor does not have access to the database search tool. Search engine is hidden from user.
-Data is not found
Notify user that data is not available

Scenario 3: Employer wants to evaluate students at the school

Description
Employers can use the data to know about the quality of students in University of Massachusetts. System provides scale of what average students do in each class. After they pay attention to the scale of each class, they will understand which group of students will be better suited for the position.

Stimulus
Employer logs in with privileged account. Queries for survey group.

Success condition
Verify account privileges. Display survey data.

Failure Conditions
-The account is not authorized to view survey data.
Employer does not have access to the database search tool. Search engine is hidden from user.
-Data is not found
Notify user that data is not available

Scenario 4: Other schools want to use data to evaluate strength of UMass CS

Description
The system could be used as a research database. For professors from other universities looking forward to improve their teaching technique, they could visit our website. They can look at the proportion of faculty doing research in a particular area of their interest. For example, imagine you were a professor teaching in Boston University and you really wanted to do research in "Machine Learning"; however, Boston University does not have a big CS department so you can't do much research there. Therefore, you have to look for universities where there is a lot of machine learning research going on. So you can see our website to figure that out. They could compare the data that we provided and to their own data in order to improve their courses.

Stimulus
Professor logs in with privileged account. Accesses statistics search engine. Queries' Machine learning'.

Success condition
Verify account privileges. Display results for 'Machine learning'.

Failure Conditions
-Account is not authorized to view statistical data
User does not have access to data. Hide search engine.
-No results for 'Machine learning'
Notify user that no results were found.

Scenario 5: Administration wants to aggregate data for student performance

Description
The system is used as a data collecting machine. The system will be taking and storing data of surveys from students and professors. Administrative staff can do statistics on how average students do in each semester. It is easier and more convenient than using paper. It is also better for search for each term.

Stimulus
Employer logs in with privileged account. Queries statistical data.

Success condition
Verify account privileges. Display statistical data.

Failure Conditions
-Account is not authorized to view statistical data.
Hide search engine
-Statistical models not available.
Offer the user the ability to calculate statistical model.
-Requested statistical models not available.
Offer the user the ability to download data as a spreadsheet so user can manipulate data using their own relevant software suite.
-Statistics found.
Display statistical data.

NON-GOALS

While it has been defined what our data collection tool should do, there are some purposes in which this application will not be suitable for.

1. The goal of this web application is to give a general statistical overview of a broad demographic of people. That being said, it is not the function of this application to provide information about a specific individual. The privacy of those who use this application will be held with the utmost respect.

2. The results from the surveys that are collected from the application are not meant to be interpreted as scientific. While our data collection tool will target specific demographics, the results are not necessarily representative of an entire demographic of people. Most likely, some people from a demographic will provide survey data for our tool and others in that same demographic will not.

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3. It is also not the purpose of this application to be used by a single individual to create graphs and figures. While we will allow users to view graphs and figures representative of a broad data set, our application is not meant to allow a user to create personal graphs and figures tailored to a different context.

4. The application is not meant to implement surveys that are outside the context of Computer Science and the UMass CS program. While this application is capable of such functionality, it is not within the intents and purposes to provide users with other kinds of surveys. The application is not meant to be general-purpose.

5. The application is not meant to allow the download of the anonymous spreadsheet data to an end-user. It is meant to provide the interpretations of this data.

6. The application is not meant to replace a professional qualitative data analysis software suite but it is meant to support an analyst in collecting and organizing survey data. The application will provide functionality that will allow an analyst to download data in spreadsheet formats and manipulate the data using their own software.

There are some features that would be nice, but are auxiliary to the core intents of this project.

1. Offline access to surveys - Unlike an application like Google Docs we will not allow offline access to surveys..

2. Offline access to graphs/figures - User will require the internet to access graphs/figures

3. Integration with other websites - This application is meant to be interfaced only with a website such as the UMass CS website.

SCREEN BY SCREEN SPECIFICATION

The CS Survey Web Application is an application which collects all the survey data filled by Current Students, Prospective Students, Alums and Parents and demonstrate the data in a statistical form. The Web page will be composed of HTML or (some variant).

The major components of the Applications are:

1. Home Page
2. Surveys
3. Statistical Analysis

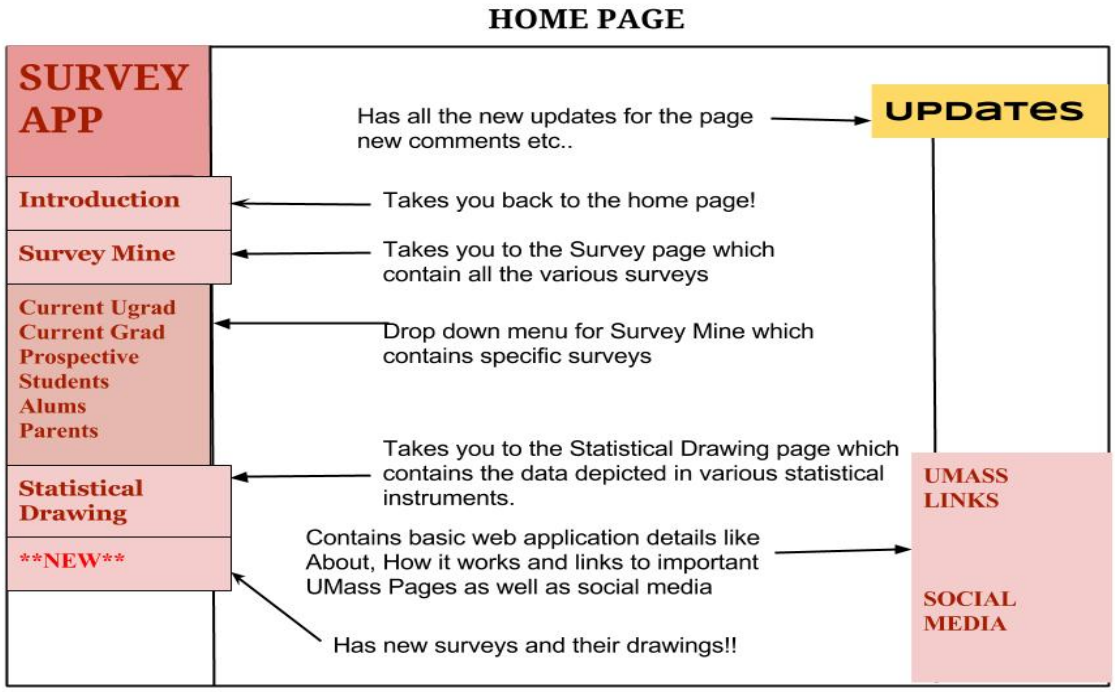
Home Page

This will be the first, main web page of our website which will include the basic contents like and route to other pages. Apart from the basic details the home page will have a prominent drop down menu for Surveys, Statistical Drawings and New

The Purpose for the homepage is consonant with the purpose of the application, i.e.

1. to allow people to fill in surveys
2. help them look up the statistical data of their surveys and various other surveys

Other thing are a clear navigation bar, clear and concise options



Surveys Mine

Even before you move to the page you shall have option for choosing which survey you wish to fill and for which category

1. Current Ugrad Student
2. Current Grad Students
3. Prospective Student
4. Alumnus
5. Parents

Each of the categories will have specific surveys relating to their category and each will take you to it's own page. So we shall have 5 screens specific to each survey category however the layout of each page as well as the survey remains the same only the content differs

Types of Surveys

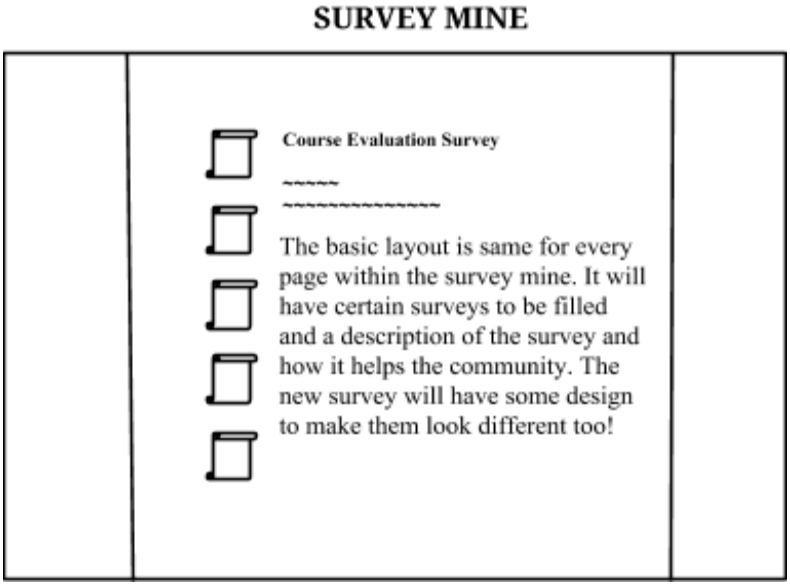
- ➢ Course Evaluation for current students
- ➢ Survey for prospective students
- ➢ Alumni survey

Types of Questions

- ➢ Demographic data (year of study, etc)

Survey format

- ➢ 10 questions (multiple-choice)
- ➢ Will generate about 5 basic(related) different diagrams for statistical analysis



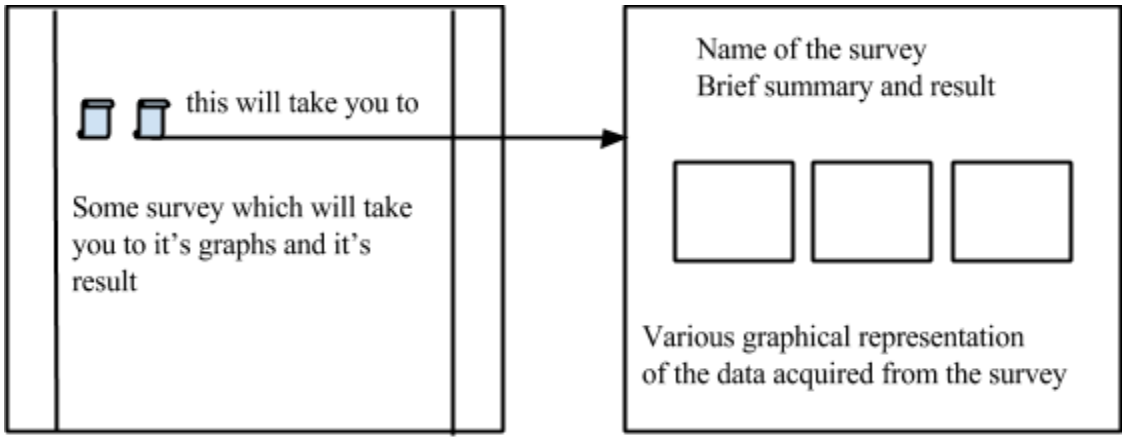
Statistical Drawing

This will be majorly dependent on the Chart Gallery by google and so it will contain

- ➢ Pie Charts
- ➢ Tables
- ➢ Column Charts
- ➢ Bar Charts and more survey relevant charts.

The page will have charts organised by categories of surveys or the name of the survey so people could refer to them once they have been generated.

The layout remains the same and each survey will take the user to it's own collection of graphs which will also have brief detail about the result.



Statistical Drawings

NEW

This will just have the newest surveys and other new details!!

Survey Collection and Analysis