Student Portfolio Service

by

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Abstract

Student job fairs are excellent for networking, applying for jobs, and conducting interviews. However, due to students’ busy schedules, many cannot attend. Student Portfolio Service provides a "virtual job fair" environment. This web-based software application simplifies the process of career development by facilitating communication between students, employers, and University faculty. Students can find co-op and post-graduate jobs using Student Portfolio Service. Student users create portfolios which will include basic biographical information, resumes, projects, and examples of student work. Employers can recruit directly from universities or colleges of their choice or browse through all students looking for a particular type of job. University faculty may find teaching assistants and hire professors. Additionally, University users can assist students in career development. University users have the ability to view job postings and student profiles in order to recommend students to prospective employers.

Many students also use services such as CareerBuilder and LinkedIn. However, these sites can be overwhelming due to the massive amount of content. Student projects that are added to portfolios will be emphasized. This makes Student Portfolio Service unique. LinkedIn, for example, is centered on social networking and does not highlight student work. Employers can recruit directly from universities/colleges of their choice instead of browsing through many applicants. For example, a manager may select University of Cincinnati to recruit students, since he or she may have heard about UC’s excellent programs. University faculty users may find research and teaching assistants. More importantly, University users may also view job postings and student profiles in order to find a good match. University users may also provide recommendations to prospective employers.
Introduction

Problem:
Many students struggle with finding co-ops and full-time careers related to their majors.

Solution:
Student Portfolio Service facilitates communication between students, employers, and university faculty by providing an online “job fair” that uses technology to communicate versus in-person conversation.

Credibility:
My co-op experience has highly influenced the technology that will be used for this project. At work, we use Microsoft technologies, such as ASP .NET MVC web-based software, Microsoft Visual Studio, and SQL Server Management Studio. I have also learned these technologies through my academic courses such as, Contemporary (C#) Programming, Web Server Application Development, Introduction to Web Development, Client-Side Web Development, Database Management, and other object-oriented programming classes (two semesters of Java programming).

Project Goals:
The goal of this project is to increase the availability of careers to students that need co-op and/or full time jobs upon graduation. This web-based solution has a more narrow scope versus large job search websites, such as LinkedIn and CareerBuilder. Student Portfolio Service focuses on student work and allows employers to recruit directly from specific colleges of their choice. Additionally, university faculty, such as professors and advisors, have the ability to be involved in the process and communicate with both students and employers.
Overview

The remainder of this report provides details regarding how the project was completed. The report includes a discussion of the following sections: statement of need, supporting resources, proposed course of action, user profiles and design protocols, technical elements, budget, and timeline.

Statement of Need

The job fair environment may not be the best way for some students to find co-ops and full-time, post-graduation job positions. Certain types of students may thrive at an event such as a job fair. However there are other students that may not feel as though an in-person job fair is helpful.

Many students may not have the time to attend career fairs due to work, family obligations, university clubs and organizations, and other factors that may contribute to a student's lack of time.

Additionally, issues such as unemployment, underemployment and student personality types may contribute to a student's success with the job fair experience. These issues will be addressed in the supporting resources of this document.

The primary emphasis of the product is web-based software. This will be completed using Microsoft technologies. Specifically, Microsoft Visual Studio will be used in order to create an ASP.NET MVC web application. SQL Server Management Studio will also be used in order to manage data tables within the database.

Supporting Resources

According to the Bureau of Labor Statistics, the unemployment rate is decreasing. The Bureau of Labor statistics reports an unemployment rate of approximately 5.9% as of September 2014 (latest calculation). This indicates that students may have a better chance of finding a career during this time period. Figure 1 displays the improvement in the unemployment rate over the past 7 years.
However, underemployment is a serious issue facing college graduates. Many students must settle for jobs that do not require a college degree or accept a job that is not related to their major.

The Bureau of Labor Statistics categorizes underutilization (underemployment) into six different categories. (See figure 2).

![National Unemployment Rates, 2008 - 2014](image)

The six state measures are based on the same definitions as those published for the United States:

- U-1, persons unemployed 15 weeks or longer, as a percent of the civilian labor force;
- U-2, job losers and persons who completed temporary jobs, as a percent of the civilian labor force;
- U-3, total unemployed, as a percent of the civilian labor force (this is the definition used for the official unemployment rate);
- U-4, total unemployed plus discouraged workers, as a percent of the civilian labor force plus discouraged workers;
- U-5, total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force plus all marginally attached workers; and
- U-6, total unemployed, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers.

*Figure 2: Source: Bureau of Labor Statistics*

The most severe category of underemployment, U-6, is currently at national rate of 12.5%. Ohio is close to the national rate at 11.8 % (Bureau of Labor Statistics, bls.gov). Student Portfolio Service aims to reduce this percentage of underemployed workers, as well as the overall unemployment rate for college
graduates. By allowing employers to directly recruit from colleges, students will have a better chance of job placement, and employers have the ability to verify that their interviewees have the qualifications for job positions. The goal for employer users is to find students who have majored in an area of study that is related to the industry.

In order to gain insight from a University official, a colleague, Ryan Toepfer, offered to conduct an interview with a family friend, Dr. R Mainous, who is an Associate Professor for the College of Nursing and Health at Wright State University- Miami Valley. She gave an excellent perspective on how Student Portfolio Service can help all students, even those that may not have a technical or design major. According to Dr. Mainous, “It’d be cool when I’m looking for a potential hire to click on a presentation they gave, or a lecture / lecture materials, or PowerPoint’s they've developed, or some creative teaching strategy.” She also mentioned during the interview that a service like Students Portfolio Service would be very helpful in the hiring process for job positions within the university. (R. Mainous, personal communication, October 10, 2014).

Additionally, students with certain personality types may find a “virtual job fair” to be more beneficial than an in-person job fair. Many students do not possess extroverted personality traits, and this might cause a student to feel inferior due to not being outgoing and gregarious. According to Lee, Johnston, and Dougherty, “an individual who is high on extraversion may find it most enjoyable to learn in situations that involve interaction and activity. By contrast, those who are fairly low on extraversion may prefer one-on-one or self-paced learning, or models such as lectures or computer-assisted instruction” (p. 423). An online resource, such as Student Portfolio Service provides an option for all personality types to interact with students, employers, and university faculty.
**Proposed course of action/solution**

Student Portfolio Service is web-based software with a database to hold all of the user data. There are three types of accounts: Student, Employer, and University. Students can create a profile and submit examples of work. Employers have the ability to search for potential new hires by college. University faculty can have access to viewing both student and employer profiles in order to help match students with employers that are offering positions pertinent to his or her major.

**Discussion of User Profiles and Design Protocols**

The potential users of this software are students, employers, and university faculty. The users will have some familiarity with Microsoft Office products and using a web browser.

Some students and employers may have experience using similar applications, such as social networking sites. Student Portfolio Service is different than social networking websites. Although it may use some similar technology, this service allows for students to display their work. Additionally, students must be familiar with the applications required to complete student work to be included in profiles.

The frequency of use for students is estimated to be the most frequent, approximately four to six days per week. The next most frequent group of users is estimated to be university users since they will need time to reply to messages received from both students and employers. The employer users are estimated to use the service as frequently as three to five days per week.

The use case diagram, included in Figure 3, demonstrates how each user will interact with Student Portfolio Service.
Use Case Diagram

Figure 3
The User Profile Form, located in Table 1, defines each user and what is expected from each profile.

### User Profile Form

<table>
<thead>
<tr>
<th>Application: Student Portfolio Service</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Potential Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students</td>
</tr>
<tr>
<td>• Employers</td>
</tr>
<tr>
<td>• University Faculty</td>
</tr>
</tbody>
</table>

### Software and Interface Experience:

The users of this software have familiarity with Microsoft Office products, using a web browser, and students must have the ability to upload projects, using the web-software.

### Experience with Similar Applications:

Some students and employers may have experience using social networking sites. Student Portfolio Service is different than social networking websites. Although it may use some similar technology, this service allows for students to display their work. Additionally, students must be familiar with the applications required to complete student work to be included for profiles.

### Task Experience:

- **Students:**
  - set up profile
  - upload resume
  - provide a short overview (bio)
  - upload projects

- **Employers:**
  - set up employee profile
  - provide job postings
  - provide pertinent background information about company
  - set up a "wish list" of favorite student profiles that may be qualified to hire
  - ability to view student profiles listed by university/college
  - contact students with profiles that meet qualifications for jobs

- **University faculty:**
  - set up University user profile
  - provide a short bio about educational background and teaching experience
  - contact students and employers with recommendations
  - create a "wish list" of students that are looking for research assistant and/or teaching assistant positions
  - view student profiles and employer listings to see if there is a good match to recommend to a student
Frequency of Use:

- Students
  - most frequent, 4-6 days/week
- Employers
  - approximately 3-5 days/week
- University Faculty/Officials
  - almost as frequent as student users, since professors will need time to reply to messages received from both student and employer users.

Key Interface Design Requirements that the Profile Suggests:

- Common:
  - Welcome screen with login
  - Login/Create new account
  - Messaging inbox
  - Profile page/edit profile
- Student:
  - project upload
  - bio section
  - search results for job postings
- Employer:
  - employer bio
  - enable document uploads
  - job posting interface
- University Faculty
  - Professor/Instructor bio page
  - enable document uploads
  - enable postings for research assistants and teaching assistants
  - allow University users to view
  - student profiles
  - employer job listings
  - form to contact students and employers with recommendations

Table 1
Figures 4 and 5 represent key elements of the Student user account. Figure 4 represents a student’s homepage dashboard which is displayed after logging into the account. Figure 5 represents a sample student portfolio. This particular sample is an example of a student studying photography.

*Figure 4 Student Homepage*
Figure 5 Student Portfolio example
Technical Elements

The software required for Student Portfolio Service is Microsoft Visual Studio (preferably Visual Studio 2013), SQL Server Management Studio (SSMS), and a web browser. The hardware requirements would be minimal, but the user must have a processor fast enough and a sufficient amount of memory to efficiently use web-based software. Additionally, the user needs an internet connection.

The main reason for using Microsoft technologies in order to develop this project is ease of use and appropriateness. Microsoft Visual Studio and SSMS work together seamlessly in order to connect the data tables to the software. Additionally, I have experience using Visual Studio, SSMS, and the MVC pattern for ASP .NET web applications for my co-op position. My experience has taught me how powerful a web-based software project can be using these technologies.
Budget

In order to complete this project, fortunately, I did not need to spend any of my own money nor seek investors. However, if this service were going to go into production, there would be some costs involved. A significant expense is the salary for the development team. The initial estimate for the size of the development team is thirty individuals. This team would consist of software developers, quality assurance analysts, business analysts, and management. In addition to salary costs, the budget for Student Portfolio Service includes required software, services, hardware and equipment. Figure 6 sums up the salary and equipment allocations for the Student Portfolio Service budget if it were to go into production.

<table>
<thead>
<tr>
<th>Development Team Role</th>
<th>Salary</th>
<th>Total (annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Developer (15)</td>
<td>$60,000 / year</td>
<td>$ 900,000</td>
</tr>
<tr>
<td>Quality Assurance Analyst (10)</td>
<td>$50,000 / year</td>
<td>$500,000</td>
</tr>
<tr>
<td>Business Analyst (2)</td>
<td>$50,000 / year</td>
<td>$100,000</td>
</tr>
<tr>
<td>Management (3)</td>
<td>$80,000,000 / year</td>
<td>$240,000</td>
</tr>
</tbody>
</table>

## Budget for Production Version of Student Portfolio Service

<table>
<thead>
<tr>
<th>Item</th>
<th>Units</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Visual Studio</td>
<td>1 (VS ultimate 2013 with MSDN)</td>
<td>$13,299.00</td>
</tr>
<tr>
<td>Microsoft Team Foundation Server</td>
<td>2 (each license supports up to 5 developers)</td>
<td>$998.00</td>
</tr>
<tr>
<td>Microsoft SQL Studio Management Studio</td>
<td>1</td>
<td>$3,189.00</td>
</tr>
<tr>
<td>Data Servers (Rackspace DevOps)</td>
<td>$5,000 / mo</td>
<td>$60,000.00</td>
</tr>
<tr>
<td>Equipment (HP notebook computers for development team)</td>
<td>30</td>
<td>$17,070.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$94,556.00</td>
</tr>
</tbody>
</table>

*Figure 6*
Timeline

In order to complete this project within the deadline, I created a schedule to submit all deliverables by the established deadlines. Table 2 presents my schedule that was created. The coding of the project occurred in sprints (approximately two weeks in length).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning and Requirements Gathering</td>
<td>10/6/14 through 10/17/14</td>
</tr>
<tr>
<td>Initial Design Phases</td>
<td>10/10/14 through 10/10/14</td>
</tr>
<tr>
<td>Initial Coding. Two-week sprints (2)</td>
<td>10/20/14 through 11/10/14</td>
</tr>
<tr>
<td>Sprint 2.1</td>
<td>1/26/15 through 2/12/15</td>
</tr>
<tr>
<td>Sprint 2.2</td>
<td>2/13/15 through 3/4/15</td>
</tr>
<tr>
<td>Sprint 2.3</td>
<td>3/5/15 through 3/24/15</td>
</tr>
<tr>
<td>Hot fix sprint (if needed before Tech Expo)</td>
<td>3/24/15 through 4/12/15</td>
</tr>
</tbody>
</table>

Table 2
Gantt Chart

The proposed Gantt Chart for the project halfway point (end of Fall Semester) is pictured in Figure 7.

The Gantt Chart for Student Portfolio Service was updated to account for the Spring Semester deadlines and the Information Technology Expo. The updated chart is pictured below in Figure 8.
Conclusion

Student Portfolio Service can help students find jobs, help employers recruit directly from universities and colleges, and university faculty can become more involved in the job finding process for their students.

Students can easily browse through job openings from companies that would like to hire students. This online job-fair environment allows for students to communicate quickly and conveniently with potential employers. As a result, students may concentrate on their course work instead of spending time preparing for an in-person job fair. Additionally, students may upload examples of their work so that employers may preview the student’s skills and capabilities.

Employers have the ability to search for students who are seeking co-op and full-time jobs, and the search results will be filtered by the school in which the student attends. Employers no longer have to browse through very many profiles on public sites such as LinkedIn, Career Builder, Monster, etc.

University officials may take advantage of using Student Portfolio Service by helping to facilitate communication between employers and students. Professors, advisors, and other university faculty can become more involved with students' employment. University faculty may make suggestions to the students when they find a job that could be a good match.
References

