Chapter One

Project Initiation

1. Project Initiation

1.1 Problem Definition

Many organizations started using career portfolio in order to track personal development and accomplishments, which is an in-depth summarization of the individual work, such as evaluations, sample work, awards, and acknowledgments. Moreover, career portfolio gives the individual an in-depth understanding of self and goals, it also acts as a marketing tool in selling oneself for personal advancement. In addition to that career portfolio helps employers in finding qualified and suitable individuals for job.

Currently Students find it difficult to keep track of their own educational profile. In addition, instructors at the universities can't keep track of educational profile of students at the university and their career profile after graduation. Furthermore, students can't put their accomplishments on a single profile and build a portfolio that has the recommendations of the instructors at university. Thus, instructors cannot stay up to date with the career of their alumni.

Another problem appears in the scenario where employers who are looking for employee can't find the suitable employee.

1.2 Current/Existing Systems:

1.2.1 Alumni UOP (Current system)

This system is customized for university of Petra alumni, to keep in touch with their alumni.

And it requires from alumni to keep updating his information to let the university show his record for companies that need new employee.

The alumni get access to his/her account after graduation and he can check the job offers that are available on the Alumni UOP, it also provides alumni year book, alumni magazine, albums and news, also students can see job offers that available on the Alumni UOP.

1.2.2 Linked-In (Existing System)

This website is one of the biggest websites around the world, it allows users to create their profiles without fees, insert and update information to keep it up to date, and provides job offers that companies share. The user can add information about himself, share an update, upload photos, and write an article.

But there is no privacy and a huge number of users, which makes it hard to keep track of a specific group of users (such as a university who wants to keep track of its students).

On the other hand, Linked-In provides companies with the ability to share job offers, keep track of employees, and find right people for the job. Linked in asks for fees for company accounts, also they provide a trial period for companies.

1.2.3 Dribble (Existing System)

This website is only for designers, web designers, illustrators, icon artists, typographers, logo designers, and it is a place to show and tell promote, discover, and explore design.

All your works and designs is for public. The user you can upload the design and see peoples comment and get likes on design and share the photo.

And it is totally free.

Comparing between products:

Product Name	Customized/Public	Cost	Stakeholder
UOP-Alumni	Customized	Free	UOP alumni, all majors
Linked-In	Public	Free/Paid for companies	All majors
Dribble	Public	Free	Designers
UniPorto	Both	Free	University students and alumni, all Majors

Table 1- Comparing between Products.

1.3 Literature Review

1.3.1 Introduction

During the last couple of decades, technology evolution had a huge impact on everything in our lives. New technological concepts were developed such as cloud computing (for example Microsoft Windows Azure). And many applications that benefit the society were developed for example electronic career portfolios and the web based Alumni tracking systems.

We are going to briefly discus these topics and its relation with our project.

1.3.2 Cloud Computing

Rapid evolution of technology in the past 10 years lead to the generation of new concepts in the Information Technology field such as Cloud Computing. Which is an internet based computing that is managed by an external parity. Data centres contain all the storage and computing solutions for clients. Usage of Cloud computing by huge organizations has reduced the up-front infrastructure cost. (Wikipedia-B,2016)

There are different cloud computing layers that gives different benefits and manageability to the clients such as the following:

- Business process which mange the process's in a specific industry, employee management EX (Fidelity.com). (Gerd,2010)
- Application-as-a-Service which provide the management on financials, collaboration, HR/ERP/CRM. EX: (Salesforce, SAP). (Gerd,2010)
- Platform-as-a-Service in cloud computing gives the ability to connect different types of databases, providing a middleware, keep track of the performance of the infrastructure used. EX: (Microsoft Azure, Google). (Gerd,2010)
- Infrastructure-as-a-Service which is a virtually shared with dynamic provisioning which gives the client the ability to build his suitable infrastructure. EX: (Microsoft Azure, Amazon Web services). (Gerd,2010)

Cloud computing architecture consists of two main parts which are Front End and Back End. The Front End includes the client infrastructure which contains all the local needs that need to integrate with the Back End through the internet. Whereas the Back End includes different tiers and resources such as the following:

- A Management layer that manages all the transactions within the data center also called fabric controller (brain of the data center).

- A physical infrastructure in order to connect all the computing units together. (data centers)
- Application tier in order to connect the client along with the cloud.
- Security mechanism for securing the infrastructure of the cloud and the application. (Tutorialspoint,2014)

There are two main types of cloud computing:

1. Private Cloud which is owned and managed and can be only accessed by limit number of clients and its partner networks, it provides the ability to customize, efficiency, availability, security and privacy. (Gerd,2010)
2. Public Cloud where the service provider's mange and own it, it can be accessed by subscription, and it provide capital preservation, flexibility and time to deploy. (Gerd,2010)

1.3.3 Microsoft Azure

Microsoft Azure is a cloud computing platform that are from Microsoft for building, deploying and managing applications through global network managed by Microsoft. It provides different types of services such as software as a service, product as a service, and infrastructure as a service. It also supports common programming languages. (Wikipedia-C,2016)

Some of Microsoft Azure technical services is Azure storage that is divided into four types:

1- Blob storage of any type of data (any extension) and it can store up to 1TB (Terabyte)

2- Queues reliable messaging for workflow processing and for communication between applications.

3- Tables where they are NoSQL (Structured Query Language) storage and they are fast access to large amount of data,

4- Files which is a file sharing that use SMB (Server Message Block) Protocol. Each account has 500 TB(Terabyte) of data and each subscription can have 100 storage account. It also has four types of replication LRS (Locally redundant storage), ZRS (Zone-redundant storage), GRS (Geo-redundant storage), RA-GRS (Read access geo-redundant storage). Moreover, it provides 256-Bit AES (Advanced Encryption Standard) encryption. (channel9,2015)

Another service from Microsoft Azure is API (Application Programming Interface). The API layer is between database and applications such as web apps, logic apps, and mobile apps. Azure API Apps provide a rich platform and ecosystem for building,

consuming, and distributing APIs in the cloud. Moreover API Management solutions helps organizations expose and publish their backend such as database as a APIs for customers or developers. (josh,2014)

Websites is another service that Microsoft Azure provides. Full capability set available such as collection of programming framework like .Net, Node.js, Java …, web jobs for long running tasks, Auto-load balancer. Auto scale, virtual networking and hybrid connections, deployment slots that allow you to use a preview website for user and if crash happens then it will return the user to old version of the website. (Koch,2014)

SQL Databases is one of the most famous databases. Microsoft Azure provide it as a service. They provide full management on the database, automatic support for backups and replication, also provide scale out with Elastic Scale. It provides limits sensitive data exposure by preventing unauthorized access to data and policy-based security. The data is protected and encrypted using AES-256 encryption. (Larsen and Klein 2013)

One of the biggest services Microsoft Azure provide is virtual machine. Users can take a virtual machine if they are using PaaS (Platform as a service) or IaaS (Infrastructure as a service). This service provides the user with IT Pro experience, support for key server applications, easy storage manageability, high availability features, advanced networking through virtual networking. It also supports SQL Server 2012, Windows server 2008 R2, SharePoint 2010 & 2013, BizTalk 2010 & 2013, System Center 2012, and not only on windows products it is supporting an open source such as Ubuntu, SUSE Linux Enterprise Server 11 SP2. It provides management, configuration, security, networking, service model for each virtual machine. Azure allows users to connect more than one service together such as connect data storage with virtual machine to make it easy to access and available (Washam ,2013)

1.3.4 Career Portfolio

What is career portfolio, and how can career portfolio help us?

"Career portfolios are used to plan, organize and document education, work samples and skills. People use career portfolios to apply to jobs, apply to college or training programs, get a higher salary, show transferable skills, and to track personal development." (Danielson, 1997; Wikipedia-A,2016)

Career portfolio should contain critical information that are not limited to personal information, sample work, awards, and acknowledgements.

There are various types of portfolios depending on their industries, for example:

- An artist would make artist's portfolio, which consist of their artwork, conferences, galleries, to show his work and give others an idea, what type of work is he working on, or doing. Also it will show his skills and level in his work.
- An engineer portfolio, which would contain his engineering structures or his achievements, maybe some photos of his architects
- Actors also use portfolios to show their career with digital photos, videos, biographies, skills, talents.
- Animators use portfolios to demonstrate their skills to potential employers in a video which usually is called demo tapes, which usually is less than 2 min in length which shows some of his / her best works. (Danielson,1997)

There are 3 types of portfolios which are we going to talk about

1- Working portfolios:

A working portfolio is a <project in progress> portfolio, which contain the works that are being done now, and samples of the works that are finished.

The purpose of the working portfolio is to work as the container that holds the student work. (Danielson,1997)

2- Display portfolios:

Display portfolio is probably the best portfolio for the students, which display the Students best work, the work that makes them and their teachers proud. The main idea of this portfolio is to make the students feel the pride and the sense of accomplishment that makes their effort worthwhile.

The purpose of the display portfolio is to demonstrate the best and the highest level of work, achievement attained by the student. (Danielson,1997)

3- Assessment portfolios:

The purpose of the assessment portfolio is to document what the student has learned so far.

Assessment portfolio may serve as evidence that a child has what it takes and sufficient skills in a specific area to move to the next level. (Danielson,1997)

Advantages of career portfolio:

Career portfolios can help with finding a job, acceptance into a higher education institutes, it also builds some sort of more specific C.V than the normal C.V. (Danielson,1997)

Career portfolio can be used as a lifetime career achievements list.

1.3.5 Alumni Tracking Systems

Due to the evolution of the internet Alumni tracking system is used, which is software that keeps universities connected with their students in addition it gives a lot of advantages such as helping students in the career path, creating a network of Alumni's to increase growth and development of Knowledge. (Gandham, 2011)

Huge number of students graduate each semester, which leads to inability of universities to keep gathering personal or professional information of alumni's and former students. Therefore, Alumni Tracking Systems were developed. (Tansey , 2008)

Expanding the relationship with different industries through the alumni tracking system is one of the advantages of using it. Where it became more easy due to the development of technology where connections are built between alumni, universities and companies. Another benefit is giving alumni the ability to become a part of a significant community where he would have the chance to get invited to events and receiving newsletters. (Gandham, 2011)

A lot of challenges are related to alumni tracking system such as the ability to attract the alumni in order to stay active on the system like other social networks. In addition to encouraging the university students to be part of the portal after graduation. (Gandham, 2011)

Another challenge faces the alumni tracking system is the inability to keep the alumni informed about ongoing news, inform them about upcoming events or meetings, recent activities related to the student major that is happening around him, and job vacancies and seminars, (Qafqaz University , 2014)

Cooperation between alumni and universities by increasing the employment rate but there is no direct interaction between them. Where we consider including a fully functional alumni tracking system with all its benefits in addition to creating interaction between the instructions and alumni's an even college student where we connect them on a single unified portal. (Qafqaz University, 2014)

1.3.6 Conclusion

In Conclusion, our project will include the cloud computing using windows azure services in addition to building an interactive alumni tracking system that includes different actors to interact. Moreover, we are going to give the student the ability to build his own portfolio in a dynamic way.

1.4 Project Objectives:

Objective 1: Allow students to increase their employability by Building career portfolio.

Objective 2: Allow universities to keep track of achievement of their students and alumni.

Objective 3: Providing interaction between students and instructors.

1.5 Stakeholder List

The table below demonstrates stakeholders for this application, their interest and the impotence for each one.

Stakeholders	Interest	Importance
Student	Build career portfolio	High
Alumni	Find job opportunities	High
Companies	Suitable alumni and students for job	High
Instructor	Keep track of his students and alumni's	High

Table 2 Stakeholder List

1.6 Proposed scope and Process model

In order to develop the system, we will perform the following activities:

- Set up a domain for the project on Microsoft Azure.
- Create a web site with SQL repository to provide the system functionality
- Create web API that provide services for mobile application
- Validatting the functions after its developed and making sure that it meet the requirments.

We are using the unified process model to develop the system in order to keep our activities adaptive. Each iteration is two weeks. Each member works on one functional requirement during the iteration. The iteration includes the analysis, design, implementation and testing of the functional requirement.

1.7 Scope excluded and project constraints

Due to the time constraint of the project (3 months only) and the fact that we need to get familiar with new technologies in order to use in our project. In addition, the complexity of some functions may take extra time to develop. All this would affect the development of our project, so some functionality might not be delivered.

References

Breiter, G., 2010. *Cloud Computing Architecture and Strategy.* San Francisco, IBM Corporation.

Danielson, C. & Abrutyn, L., 1997. *An Introduction to Using Portfolios in the Classroom.* 1St ed. West Virginia: Association for Supervision & Curriculum Development.

dribble, 2016. *About.* [Online]
Available at: https://dribbble.com/about
[Accessed 14 January 2017].

Gandham & Prasanna, L., 2011. *A FRAMEWORK FOR DESIGNING SMART ALUMNI SYSTEMS.* [Online]
Available at: http://www.famu.edu/cis/Gandham_thesis.pdf
[Accessed 13 November 2016].

Giard, D. & Blumenthal, M., 2016. *Designing Azure Compute and Storage Infrastructure.* [Online]
Available at: https://channel9.msdn.com/Blogs/Azure-and-the-Modern-Data-Center/Designing-Azure-Compute-and-Storage-Infrastructure
[Accessed 13 November 2016].

Koch, J., 2014. *Microsoft Azure Fundamentals.* [Online]
Available at: https://channel9.msdn.com/Series/Microsoft-Azure-Fundamentals-Websites/05
[Accessed 13 November 2016].

Kumar, R., 2016. *Cloud Computing Overview.* [Online]
Available at:
https://www.tutorialspoint.com/cloud_computing/cloud_computing_overview.htm
[Accessed 12 November 2016].

Larsen, L. & Klein, S., 2013. *Windows Azure Storage & SQL Database.* [Online]
Available at: https://channel9.msdn.com/Series/Windows-Azure-Storage-SQL-Database-Tutorials
[Accessed 13 November 2016].

LinkedIn, 2016. *About Us.* [Online]
Available at: https://press.linkedin.com/about-linkedin
[Accessed 13 January 2017].

Petra, 2011. *Petra Alumni.* [Online]
Available at: https://services.uop.edu.jo/alumniuop/Index.aspx
[Accessed 3 January 2017].

Qafqaz, U., 2002. *Coordinating Unit for Alumni.* [Online]
Available at: http://www.qu.edu.az/en/pages/Alumni-Tracking-126.html
[Accessed 13 November 2016].

Tansey, J., 2008. *Tracking Alumni.* [Online]
Available at: https://www.etsu.edu/125/documents/Tracking%20Alumni.pdf
[Accessed 13 November 2016].

Twist, J., 2014. *Introduction to API Management on Microsoft Azure.* [Online]
Available at: https://channel9.msdn.com/Events/TechEd/NorthAmerica/2014/DEV-B351
[Accessed 11 November 2016].

Washam, M. & Planky, 2016. *Windows Azure Virtual Machines & Networking.* [Online]
Available at: https://channel9.msdn.com/Series/Windows-Azure-Virtual-Machines-and-Networking-Tutorials
[Accessed 11 November 2016].

Don't use Wikipedia in your reference list.

Wikipedia-A, 2011. *Career portfolio.* [Online]
Available at: https://en.wikipedia.org/wiki/Career_portfolio
[Accessed 13 November 2016].

Wikipedia-B, 2014. *Cloud computing.* [Online]
Available at: https://en.wikipedia.org/wiki/Cloud_computing
[Accessed 10 November 2016].

Wikipedia-C, 2014. *Microsoft Azure.* [Online]
Available at: https://en.wikipedia.org/wiki/Microsoft_Azure
[Accessed 13 December 2016].