مركز سعيد خوري لتكنولوجيا المعلومات
**SAID KHOURY IT CENTER OF EXCELLENCE**

# IT Business Development Unit

# Career Counseling Division

# Job Placement Project

# Software Requirement Specification

Written by

**Abu Hasan, Firas**

**Amro, Murad**

**Khalaileh, Fadi**


Edited By

**Dhaher, Omar**

May 5, 2005

Said Khoury Information Technology Center of Excellence
IT Business Development Unit

# Table of Contents

# 1.0 Introduction

Every year thousands of students graduated from universities in different specializations, and start seeking for a job. However, searching for a job could be a time consuming process. Lack of communication between the private and public sector and educational institutions leaves the students uninformed about job and internships opportunities and the companies/organizations/government agencies unaware of potential employees in the market.

Conventional methods for searching and applying for jobs and internships, such as newspaper ads, are no longer sufficient. Companies/organizations/government agencies and job seekers must find another effective, time-saving, and permanent way for communication.

For many years now, the Internet had served as an excellent medium for effective communication between several parties. Using the Internet as a medium and web technology as a tool, a system that connects job providers with job seekers would be an answer to the conventional methods shortcoming.

This document presents the software requirements specification for such a system. We have called our system: Job Placement. The Job Placement is an open source application licensed under the GNU license, and is hosted at Source Forge (http://www.sourceforge.net/projects/job-placement/). The application is to be developed in the Said Khoury Information Technology Center of Excellence (SKITCE) at AL-Quds University by Firas Abu Hasan, Murad Amro, Omar Dhaher, and Fadi Khalaileh.

The System requirements specifications (SRS) document contains four main sections:

1.0 Introduction

2.0 Overall Description

3.0 Specific Requirements

4.0 Other Requirements

## 1.1 Purpose

We will describe our system and the intended of the end user as follow:

### 1.1.1 The delineate of the SRS purpose:

1. Every thing in the system will be described and each operation and function that the system will do will be explained.
2. Organized in straight forward to be formal in determining the requirement for end user.
3. Gives an explanation to help the designer to understand the user needs and what the system will be in an accurate matter.
4. Define all constraints and limitations in the system.
5. To give the developer the ability to develop this product in easy way.
6. Requirements identify functionality, and how the system will work.
7. Requirements demonstrate the way that convinces the customer that the system is being delivered is indeed what was ordered.
8. To remove all complexity from the system analysis.
9. The SRS serve purpose, that is; to give complete and correct description for the system

### 1.1.2 Specify the intended audience for the SRS as follow:

1. To have system requirements that is more accurate than system description provided by system analysis.
2. End users want to know every thing related to the
    System, such as hardware needs.
3. Requirements can describe how the system will look like in the future.
4. Help the designers to define interfaces, for the data, how it will be, input and output, with knowing its format configuration.
5. Present the physical environment that's the system will be in, such as locations, temperatures...etc.

## 1.2 Scope

In this section we will explain and describe the scope of SRS for our software product through the following points:

1.2.1 Identify the software products.

1.2.2 What the software product will do.

1.2.3 Objectives and goals.

**1.2.1 Identify the software products:**

**What is our system and why we want to build it?**

This system – The job placement - will serve as a communication tool between applicants and employers to save their time with regards to job/internship search. The system will simplify the process of finding a job/internship by allowing applicants to have access to all Organizations registered in the system, by industry, location, size, etc. It also allows these Organizations to search for employees and know more about their skills.

The system will be implemented as a web-based application product to provide access to its users any where, provided Internet connection exists. By enabling applicants to search for jobs, acquire information about companies, and upload required documents to apply for a job, and allowing employers to add available jobs to the system, and acquire information about applicants and their skills.

**1.2.2 What the software product will do?**

The main aim of this project is to enable applicants to search for jobs/internships and employers to search for eligible applicants. Other function are:

- Provide level of secure access to the users.
- Provide users with custom interface.
- Provide integrity of data
- Enable users to add/update/modify/delete their data

- Keep track of changes in the user information regardless of the user type
- Enable users to upload required document.
- provide users with information about other users

### 1.2.3 Objectives and goals

The main objective of this system is to make searching for job easier and faster by making the communication between the applicant and employers electronically through:

1. Creating a database system of the job placement
2. Storing information about Organizations and applicants
3. Providing an overview of each organization
4. Making the search for specific job easy and fast
5. Updating the data easily
6. Protecting the data from forgery
7. Guaranteeing the privileges and privacy for each user
8. Comparing between applicant dream job and Organizations' available jobs
9. Sending email to the Organizations and applicant when a match is found.

## 1.3 Definitions, acronyms, and abbreviations.

### 1.3.1 Definitions:

| Word | Definitions |
|------|-------------|
| Organization | The place where employees work under certain specialization job in order to implement certain goals. Organizations may be private public or not-for profit. |
| Applicant | The person who seek a job. |
| Employer | The organization or the person who employ an applicants. |
| Administrator | Person who have all permissions in order to manage the system, by adding, removing, and updating data. |
| University | A large and diverse institution for the higher learning created to provide education |

| Region | Geographical area where people live. |
|---|---|
| Job type | The type of job that person work on Job type may be full time, Part time, volunteer job, or other. |
| Certificate | A diploma that graduate students is granted by their university certifying that they have finished their Education from the university. |
| Grades transcript | The list of gradated student's grades for all courses that he/she took in the university. |
| Qualification | The knowledge and skills that the applicant must have in order to For the job |
| Job responsibility | All tasks and duties an employee should perform within a job |

**1.3.2 Acronyms:**

| LAN | Local Area Network. |
|---|---|
| WAN | Wide Area Network. |
| SRS | System Requirement Specification |
| PHP | Personal Home Page. |
| WWW | Wide World Web. |
| CV | Curriculum Vitae |
| HTTP | HyperText Transfer Protocol. |
| TCP/IP | Transport Control Protocol / Internet Protocol. |
| HTML | HyperText Markup Language. |

## 1.4 References

- Software Engineering (the production of quality software), second edition, Shari Lawrence.
- IEEE Recommended Practice for software requirement specifications.

# 2.0 General Description

This section will help the designer and programmers to thoroughly understand the system.

## 2.1 Product Perspective

This system is a database web site that enable users who have an account to access it. There are three types of users :

1. **Administrator**: A user that has responsibilities and permissions to manage and maintain the system. The administrator is also responsible of the development, backup and restore of the data.

2. **Applicant**: A user that has permission to add, update his/her information, search for a job, and upload his/her document.

3. **Employer**: A user that has permission to add an announcement for a new job/internship, search for an applicant who is qualified for a specific job/internship, and update his/her/its profile.

There is one account to the administrator  user, one account to each applicant and one account to each organization (employer) that enable them to get access to the system. Each account is granted privileges and roles.

 In this section we will describe the following point by taking in consideration that this system is totally self-contained:

- System interfaces.
- User interfaces.
- Hardware interfaces.
- Software interfaces.
- Communications interfaces.
- Memory constraints.

- Operations.

### 2.1.1 System interfaces

The system will be built using Macromedia package, Adobe collection, JavaScript editors and PHP editors. These entire tools product will support the system with suitable development interfaces, which act with the database (MySQL) in which data is stored. Tools supported function:

- Security and privilege of system users.
- Back up and recovery.
- Easy Development Environment.

### 2.1.2 User Interfaces

Since several types of users (explained in section 2.1) will be allowed to use the system resources, then different interfaces will be supported according the user type and privileges

Tow main type of interface will be supported for system users:

- Admin interface

- End user interface

The admin interface is restricted. Only trusted users; i.e. administrators, can access it. This will provide customized control desktop in which the system function can be activated according to user privileges.

The end user interface will support an easy flow and browse of information that helps the user to reach his/her target information

Both interfaces are supported by helpful tools and guideline to guarantee system usability and functionality.

**2.1.3 Hardware interfaces**

- Server (computable/brand name is recommended)
- Backup media need to store the data in the database

**2.1.4 Software interfaces**

- Server OS (Windows 2000 server)
- MYSQL
- Back-up program
- Apache 2 server

**2.1.5 Communication interfaces**

The system is web-based application using the internet so it can be accessed from anywhere in the world.

**2.1.6 Memory constraints**

Depending on the hardware interface the following constraints is recommended:

- RAM: at least 128MB
- Storage: at least 20GB
- Backup device

**2.1.7 Operations**

The desired operations by the user; will include the following transaction:

- Enable entering the data in a flexible and correct way
- Search for data with minimal time

- Use of system recovery to retrieve or back up data

- Produce the correct results, given a proper conduct by the user

- Grant access to the system according to an access protocol. The protocol is developed depending on the user type.

## 2.2 Product Functions

The list below shows the summarized system functions:

- System Login/Logout
- System Accounts
- Search(search for organization, employer, applicant and other information)
- Announce for a new job
- Apply for a job
- Close a job
- Update information
- Upload documents

## 2.3 User Characteristics

According to this system we have three types of users: administrator, applicant, and employer. All of them must have at least general knowledge of using standard WWW browser including Internet Explore and Netscape Navigator programs.

## 2.4 General Constraints

- No need for a hardware limitation in use.
- The system works as stand alone application.
- The requirements of the system are reliable.
- The system language requirement has a higher order, in a technical point of view, to be accepted by the designers.

- The security system is configured to allow trusted users who have active accounts to access the system resources.

## 2.5 Apportioning of requirements

The system is implemented to cover the current stage with all its functions and it will be developed to as an open source under the **GNU** license.

# 3.0 Specific Requirements

## 3.1 External Interface Requirements

This section describes the specific requirements of the software product. It Includes functional requirements (ranked as core, desirable or optional), functions descriptions, non-functional requirements, external interface requirements, performance requirements, design constraints, and software system attributes.

### 3.1.1 User Interface

As described in User characteristic, section 2.3 the system deals with the following user classes:
- Administrator.
- Applicant.
- Employer.

### 3.1.2 Hardware Interfaces

The server based on the type of computer as described in section 2.1.3.

### 3.1.3 Software Interfaces

The generated web pages will be computable with HTML 4.0 standards. Users of the system must comply with these standards.

**Server side**

The server's application will be run under Windows 2000 or higher or Red hat Linux 9.0 or higher platforms. Required software packages include:

- HTTP Server software(Apache2)
- MYSQL database
- server-scripting software (PHP4)

**Client side**

A web browser is the only client application needed to be installed on the client machine to access the system; this software is freely distributed by many software businesses such as Microsoft, Netscape, Opera, etc.

### 3.1.4 Communications Interfaces

Our system operates in a HTTP protocol network interface which will be handled by a web browser client. TCP/IP will be used to access the server for web services needed by the client through the Internet.

## 3.2 Behavioral Requirements

### 3.2.1 Same Class of User

The user administrator will be either developers or programmers of the system who are responsible for system backup and maintenance.

### 3.2.2 Functions

Three different rankings of functional requirements are implemented in the system which are: core, desirable and optional. Each function will be given a name, description, ranking, accessibility level and a short comment (if applicable). The system will be considered incomplete if the core requirements are not fulfilled as they form the basic foundation of the system. Desirable requirements are secondary ranking which considered as add-ons to the basic functionalities of the system, and its aim is to enhance the system's performance. Optional requirements will only be implemented when the core and desirable requirements are completely done.

## 3.2.2.1 Information handling

Information handling is a core requirement that is important to applicants and employers; applicant to know any related information about employers, and employer to know any related information about applicants. Moreover, information about jobs should be accessible to applicants to enable them identify requirements, constraints and other as follow:

- **Employer information (profile):**
    1. Employer name
    2. Employer business
    3. Employer location
    4. Organization size. According to numbers of employees who work in the organization
    5. Employer address: Tel, Fax, P.O.BOX, Email……

Employer profile will appear in job postings to give applicant an overview about the organization they intend to apply for.

- **Applicant Information**:
    - **Personal Information**:
        1. Applicant name: full name
        2. User name
        3. Email
        4. Web address
        5. Local address: P.O.BOX, Street, City, Region, Phone….
        6. Sex
        7. Birth date
    - **Academic Information:**
        1. Expected graduate date
        2. Student status
        3. Expected degree

4. Major concentration

5. Minor

6. Cumulative average

7. College

8. Resume approval

9. Computer skills

10. Language skills

11. Additional skills

o Additional academic information for Master student:

1. Prior Graduate

2. Prior degree date

3. School/College

4. Major Concentration

5. Minor

6. Resume approval

o **Career preferences**

1. Desired industry

2. Desired job function

3. Compensation type: paid or not

4. Job status

5. Internship interest

6. Period of employment

7. Region

8. Country

- **Job information**:

1. Job type

2. Job requirement

3. Job constraints

4. Job deadline and duration

5. Job status

6. Job title

7. Job location

### 3.2.2.2 System Accounts

Three different types of users are allowed**:**

1. **System Administrator user**:

   This user granted full access permission. Responsibilities: back-up, maintenance, installing, and updating the system.

2. **Applicant user** :

   This user will be granted to:-

   - Login /logout

   - Add/Delete/Edit/View all his/her Information

   - Search for employers

   - Apply for jobs

   - Save search results for later use

3. **Employer user**:

   This user will be granted to:-

   - Login /logout

   - Add/Delete/Edit/View all his Information

   - Announce new jobs

   - Close an existing job

   - Search for applicants

   - Save search results for later use

### 3.2.2.3 Search

This function will be for both employer and applicant as follow:

- Employer: Employers can search for applicants by applicant's major, experience, interests, skills, and objectives and browse his/her profile for more information.

- Applicant: Applicants can search for employers by name, region, industry, and job title. Applicants can browse the employer's profile.

### 3.2.2.4 Announcement for job

Organization looking for new employees, can use this system to announce for new jobs. Jobs added should include sufficient information to enable applicants for matching their education and skills. Sufficient information can be summarized by:

1. Job status.
2. Job type
3. Pay type
4. Job duration
5. Job location
6. Deadline for applying
7. Job description
8. Job responsibilities
9. Required documents to be attached with the application
10. Applying type
11. Qualifications required
12. Job restrictions

### 3.2.2.5 Applying for job

Any applicant who has an account in this system can browse all job announcements, and if he/she finds suitable job to apply for (according to job requirement, job restrictions, job responsibilities and/or other requirments defined by the employer), he/she can fill the application online. The employer then can contact applicants for further steps.

### 3.2.2.6 Closing job

If a position is filled, the employer closes the job by changing its status from "Open" to "Closed."

3.2.2.7 **Update information**

There are three types of users and every one has different information that is stored in his/her profile. Through time, users need to update their profile.

**3.2.2.8 Upload document**

Every job requires some sort of documents to be submitted by applicants. An example of documents are: resume, cover letter, letter of purpose, etc. When an employer announces for a new job, required documents are defined. Applicants can upload/update required documents to their profile.

## 3.3 Functions Description

This section emphasizes on functions/actions that users can perform.

### 3.3.1 System Login/Logout

- **System login**:
  To use the system, every user login using a user name and password. If the user does not have a user name and password he/she can register for a new account and specify the user type (applicant or organization) only. A valid username and password will be needed for authentication. This will be corresponded to the database, and grantee the data security and privileges. When a new user opens an account he/she must fill in his/her profile as soon as the account is created.

- **System logout**:
  When a user completes his/her transactions, he/she should logout to ensure that his/her transactions are saved and recorded. The system supports session timeout.

### 3.3.2 Account Management

This feature allows Users to manage their own user details. Also, it allows the Administrator to manage all the User accounts in the system. This feature consists of the following function(s):

- **Create  New Account**:

    A new user can register for a new account and specify the user type (applicant or organization). Only registered users can access the system. When a user opens a new account, a profile is created. The profile should be filled with required user information.

- **Delete  Existing Account**:

    The administrator is responsible of deleting existing accounts. The administrator can not delete an account without a request of user. The administrator can delete a user account without prior authorization if the user did not comply with the systems policies and/or was engaged in an unethical/illegal behavior. When a user account is deleted, the account will be completely removed from the system's database.

- **Modify  Account Details**:

    Any user can modify his/her/its information according to his/her/its privilages.

- **View Account Details:**

    Allows users to view their accounts.

### 3.3.3 Searching:

Probably, the most important function in the system. It is important to both applicant and employer. Applicants can search for jobs and other employer/jobs-related information, and employers can search for skilled applicants.

According to applicant search, the "search for job" function consists of:

1.   **Search by keyword**:

Applicants who want to work in specific job can search for this job by a keyword related to that job; such as Oracle, Java, CISCO, or other.

2. **Search by industry**:

Applicant some times wants to search for a job according to organization that exists in a specific industry. The system allows applicants to search for employers according to their industry.

3. **Search by organization**:

In this system there will be many Organizations that work in different specializations, so applicant can search for a specific organization.

4. **Search by region**:

many applicants prefer to work in a specific region. The system allows applicants to search for employers according to the region they are located.

Applicants can conduct a search with more than one option for more narrowed results.

In addition to the above 4 options, applicants can search for jobs by:
- Major
- Payment type (Paid, Non paid)
- Job type (Full time, Part time, Voluntary, Internship)

### 3.3.4 Announcement for new job:

The employer is responsible of announcing for new jobs. This function consists of several steps that are described as follow:

- **Assign job title**: Clear and descriptive job title
- **Assign job status**: Open (available)/Closed (unavailable)
- **Select job type**: Full time, part time, voluntary, internship
- **Select pay type**: Paid/unpaid
- **Select duration**: Duration of job (1 year, 2 years, …)

➢ **Select location**: the location of work, to enable applicant to see if this job is suitable for him or not.

➢ **Use text editor**: some of information about job must be written in text editor to enable applicant to have all knowledge about any job. and here there are some examples of  usage of these editor:

- Open text editor for job description

- Open text editor for responsibilities the hired applicant would have.

- Open text editor for qualifications

- Open text editor for restrictions

- Open text editor for contact information in case an applicant needs to inquire about the job

➢ **Select deadline**: Every job has a deadline for submitting applications.

➢ **Select required document**: Employers can specify what document are required to be attached to the application

➢ **Select applying type**: Online via the system or offline via fax or regular mail.

### 3.3.5 Applying for job:

Applicants use this function to apply for jobs. First, an applicant checks the status of a job to see whether it is available or not, if it is available, he/she can see more details with regards to requirements and restrictions.  If he/she decides to apply for the job, he/she ca do so either online via the system, or offline via fax or mail. The applying type determines which way he/she should choose. If he/she decided to submit the application via the system, the system checks that all required portion of the applicant are addressed, otherwise, the system will prompt the user with a list of missing required information and/or documents.

### 3.3.6 Close job:

If a job is occupied, the employer can close the job, and deny applicants from submitting their applications. Applicants will still be able to see the job announcement and details

### 3.3.7 Updating information:

Any user who has an account in this system can update his/her/its information according to given permission and privileges. To update his/her/its information a user should do the following:

- Retrieve his/her/its profile
- Change value(s) of field(s) need to be modified
- Click on the save button to save all changes made
- Confirm changes made

### 3.3.8 Upload documents

Any applicant who wants to apply for a job needs to upload the job required documents; such as, resume cover letter, etc. Applicants can upload documents to their personal folders in the system, and attach them later to the job application.

## 3.4 Non-behavioral Requirements

### 3.4.1 Performance Requirements

This section describes the performance requirements of the Product. It specifies the static; the dynamic numerical requirements that guarantee the system performance.

### 3.4.2 Qualitative Requirements

This section of the SRS states, and describes the quality aspects of the System, which include:

### 3.4.2.1 Availability

Apart from updating the system, or any technical difficulty and down-time, the system must be available for every user to access at all time (24 hours) with a correct hardware, software, and communication interfaces.

### 3.4.2.2 Security

The security issues are addressed during the development of the system, in order to prevent unauthorized access, and ensure the database and accounts safety.

- Login: Users must be authenticated by providing the correct username and password before being able to access the system. The users can only log in once at a time; this means that no multiple login is allowed by using the same username.
- Logout: either users logout by clicking on logout button, or closing the browser. If the second option is selected, the system has to wait until the session time out is set (after 20 minutes idle), and will logout automatically.

.

### 3.4.2.3 Portability

The system can run on more than one machine regardless of the operating system. It can be accessed anywhere, any time, provide Internet connection, and a web browser exist.

### 3.4.3 Design and Implementation Constraints

This section describes constraints, which may affect the development of the Product.

### 3.4.3.1 Platform constraints

The server side software will be able to run under a Windows or UNIX compatible operating system, such as Linux.

### 3.4.3.2 Client and server software constraints

The client side software should only interface with the web browser. Users are not required to install any extra or additional software or component to operate the system. The server software requires back end database. The language to be adopted by the system has to be compatible by the O.S.

# 4.0 Other Requirements

## 4.1 Database

The system will use the database source which will be stored about the Organizations, employers and jobs ……. etc.

## 4.2 Error handling

The system will check all user inputs to the system to ensure that all the fields provided are within bounds, and correct. In the case of error concerning user related input, an error message will be displayed to the user.