

# DATABASE SECURITY

## TABLE OF CONTENTS

1.	Introduction	3
2.	Objectives	5
3.	Project category	6
4.	Tools/platform used	7
5.	Software Requirement Specification	9
6.	Project Planning & Scheduling	12
7.	Modularization	14
8.	DFD (Data Flow Diagram)	16
9.	ER diagram	25
10.	Process Logic	26
11.	Data Structure & Table Design	28
12.	Report Generation Modules	31
13.	System Security	32
14.	Future Scope	34
15.	Bibliography	36

## 1. INTRODUCTION

This project is web-based enterprise software (website), which provides solution to the Online job seekers' problem and the problem of finding right employee to the company. This website is being developed for companies who have requirements of employees and the Online job seekers who require right job. The sample data collected to design and test from companies at local level and unemployed persons to address the various aspects of their problems and requirements.

In Today's life, the very big problem for every man is to search and get the job either he is more educated or less educated. The person who is qualified and wants to do a job but he has no idea and no information about the companies who have the requirements of employees or having openings. Because of lack of information the person would not get his right place or would not able to fulfill his aim however he is educated. But truth is that if anybody has ability to do something and he has right way to go then he can achieve his aim easily.

The traditional pattern of searching a job is through news paper. The papers publish special edition on a particular day of the week. The person has to go through every paper and to find job by reading thoroughly each line of the particular segment that has job vacancy. It is a time consuming and totally dependent on manual job searching technique. After keep in mind all these problems. We make our site that can solve all those problems of job seekers easily in an elegant & efficient manner. To get the job and to connect with any company there is a very simple method in our site. It is also useful for the person who wants to change their job. If they are not feeling well/good in their current employment then they can change easily by getting information through our site.

Our site provides interfaces for job seekers at one end and for companies or employers at other end. At job seeker's side, web-based forms are designed which facilitate

entry of data and there is facility to store it in the database, in which he has to give all information about him like name, qualification, experience, address, and in which company he wants to apply for job (because he can get the information and requirements of the companies) . At another side the company fulfill the prepared form for the specific purpose in which they give the company name, address, post, qualification they required they wants and how many employees they have required for the specified post. So, between the company and the user our site works as a mediator. It makes match-making between the company and the person who apply for the job. If the person is eligible for the post, the form which is filled by the person is sent to the company. If company response is in 'YES' then the person get call letter for interview through our site and can go for the interview in specified company. So this procedure of getting job makes very easy to find job for person and beneficial for companies who require for eligible employees.

The software project is very big and includes almost all aspects of job seekers application. The complete architecture is distributed and on-line so the management of data is done on-line. To manage data like update, delete, etc. is to be developed. Here strong authentication mechanism is used to ensure security of data. The software is designed in such a scalable manner that it can incorporate further enhancements.

### About Project

Our project "ONLINE JOB SEARCH" is an on-line recruitment web application that provides career resources and employment opportunities to high school and college students, resort and hospitality staff, expatriates and international job seekers, part-time workers, and adventure seekers for all fresher and experiences.

Our project "ONLINE JOB SEARCH" deal with find job. It will automate the finding match's job according to their given information aspect of the people. Online job finding will help people in getting the best jobs. With unique query analyzer where the people put up their search, if it is on the database is being answered on the spot, or the question is forwarded to all the members who can post answer for the question.

Our project is easy to use and every one can understand just some knowledge of some graphical image, symbol and some link.

The extract of all these is that if the data access retrieval and the goal everything is placed in an well order way on the net by using its technologies, we are not going to lose any way whether it is the user or the service provider. So a computer is now helpful in many other cases too:-

- ✓ Fast retrieval of information around the Globe by browsing the net
- ✓ Easy access by seating at home to most of the work places
- ✓ Easy database access with the invaluable functions of online entertainment and jobs and placement.

## 2. OBJECTIVE

- a) Provide and interactive interface with the feature of Html and JSP behaves in a sufficient manner that is easy to use and understand.
- b) All the information regarding user should be applied online.
- c) Provide a proper manner for generation of report in secure method.
- d) Provide a advanced feature for resume management.
- e) Provide a secured environment for accessed database wherever necessary.
- f) Provide en information about the updating and arrival of new user for premium user.
- g) To store details of the ONLINE JOB SEEKERS and job providers.
- h) To store details of the interviews.

Developing a viable candidate system that fulfills the Following requirements: -

- I. Faster and accurate information retrieval.
- II. Maintaining the fast download of the page by using the flavors of cookies.
- III. Easy registration.(any type)
- IV. Login dependent information retrieval and updating.
- V. Correct and consistent maintenance of data and its Quick retrieval.
- VI. The page download time and hence less Investment.

### 3. PROJECT CATEGORY

This Project is coupled with material on how to use the various tool, sub sets available in JSP AND My SQL.

The need of today's software development is competence in a GUI based front-end tool, which can connect to Relational Database engines. This gives the programmer the opportunity to develop client server based commercial applications.

These applications give users the power and ease of a GUI with the multi user capabilities of Novell, UNIX or WinNT based RDBMS engines such as My SQL.

All the important coding techniques used by programmers, in OOPS based coding is brought out in full and in great detail.

## 4. TOOLS / PLATFORM USED

### SOFTWARE SPECIFICATION

The software packages are used

- Operating System : Windows 7
- Front End : CSS, HTML, JSP
- Back End : My Sql
- Server : Apache Tomcat Server 5.5
- Macromedia Dreamweaver 8
- Internet Explorer 6.0 or above

### HARDWARE SPECIFICATON

On the basis of above software specification we have decided the following configuration of hardware for server and client.

- PROCESSOR – P4 3.06 GHz
- RAM- 256 MB
- HDD- 40 GB UPGRADABLE UPTO 80 GB
- CD-ROM
- MONITOR- VGA COLOR
- PRINTER- 132 COLUMN DOT MATRIX

## **JSP**

JSP programming tools are complete programming environments. It allows programmers to build a GUI program using the various on-screen controls such as buttons, text, menus, boxes etc. These controls are placed on a form and then the processing details related with each control are filled in.

In the business world, competitive strategies have become the order of the day to improve quality, cut costs and provide a high response customer service base. Most organizations today need to be market driven and do a lot of value addition to their products and services. This naturally calls for rational decision making, which requires information. Information Technology or IT provides that effective channel to support and implement this strategy. Client/Server is the technology that empowers the desktop, thus setting a trend for the way successful organizations will use technology in the next decade.

## **MY SQL**

MY SQL is an application used to create computer databases for the Microsoft Windows family of server operating systems. It provides an environment used to generate databases that can be accessed from workstations, the web, or other media such as a personal digital assistant (PDA).MY SQL is probably the most accessible and the most documented enterprise database environment right now. This also means that you can learn it a little quicker than most other database environments on the market

## 5. SOFTWARE REQUIREMENT SPECIFICATION

The Software Requirement Specification (SRS) is very important part of the software building process, which describes the actual user level requirement from technical point of view i.e. what the user exactly wants? The objective of preparing the software requirement specification is to represent the requirements of the software in such a manner that ultimately leads to successful software implementation. It is the result of the analysis process of the software development. It should contain all the data the software is going to process, the function it will provide, and the behavior it will exhibit.

This software Requirement Specification (SRS) is defined in IEEE std. 830-1993, IEEE Recommended Practice for software Requirement Specifications the SRS provides the following functionality: -

i. Classification of these points

- ✦ Introduction of the software: - It specifies the goals and objective of the software.
- ✦ Information Description: - It provides the detailed description of the problem that the software must solve.
- ✦ Functional Description: - It deals with the each Function design constraints are stated and justified performance & characteristics are stated one and more diagram are included to graphically represent the overall structure of the software.
- ✦ Behavioral Description: - Behavioral description examines the operation of the software as a consequence of external events and internally generated control characteristics.
- ✦ Validation Criteria: - It is probably the most important and ironically and most often neglected section of software requirement specification validation criteria acts as an implicit review of all requirements.
- ✦ Bibliography: - The bibliography contains references to all documents that relate the software engineering documentation, technical references, vendor literature and standards.
- ✦ Appendix: -The appendix contains information that supplements the specifications. Tabular data, detailed description of the algorithms, charts, graphs and other material are presented as appendix.



## Introduction:

As we know that, the Internet is huge client server architecture. The client is the web browser; it is requesting a web based data, a file, or whatever, from some computer somewhere – anywhere – in the world. The server is a computer that holds all the information we want. Today “internet” is the most common way to get information from all over world. So with the advantage of internet every year millions of people around the world are interacting with the internet, web based application in the world is not only using it also in more demand. With the fast growing of speed and network user can access the site, fast and experienced.

## Specific Requirements:

### Inputs & Outputs

My website uses one input file i.e. Registration form to maintain the records user of its regular user like name of the user, his address, phone number etc which all are included in registration form .these records are stored in database which is handled by user detail master .user can input their requirement about solution and can send mail to company.

Main outputs of the system are:

- Job description master
- Job application master
- Categories information master
- Job search master

## Function:

In functional requirement we describe how our s/w functions during processing. It combines product perspective, assumption, constraints, external interface and performance requirements.

Product perspective: In this we describe what is a requirement of the s/w that means what tools and platform we used to developed the required S/W

Assumption: - to develop any s/w, we have need to decide our vision and according to the vision, we try to convert it into the real machine .for online solution software we have need

to assume their all requirement, type, characteristics and their look or external interface .what we need to provide on the front page of the online solution software.

- No else user is allowed to view particular pages without being Register.
- Each user has to pass authentication process. Then only he can access information.

#### 1) Design Constraints:

In design constraint we design the each part of the functioning of the s/w .For this we use different designing tools like DFD describe and used to show the product function ,ER-diagram ,Flow chart ,Gantt chart ,Pert chart.

#### ii. A Complete Analysis:-

System development can be generally having two major components:

- System Analysis and
- System Design

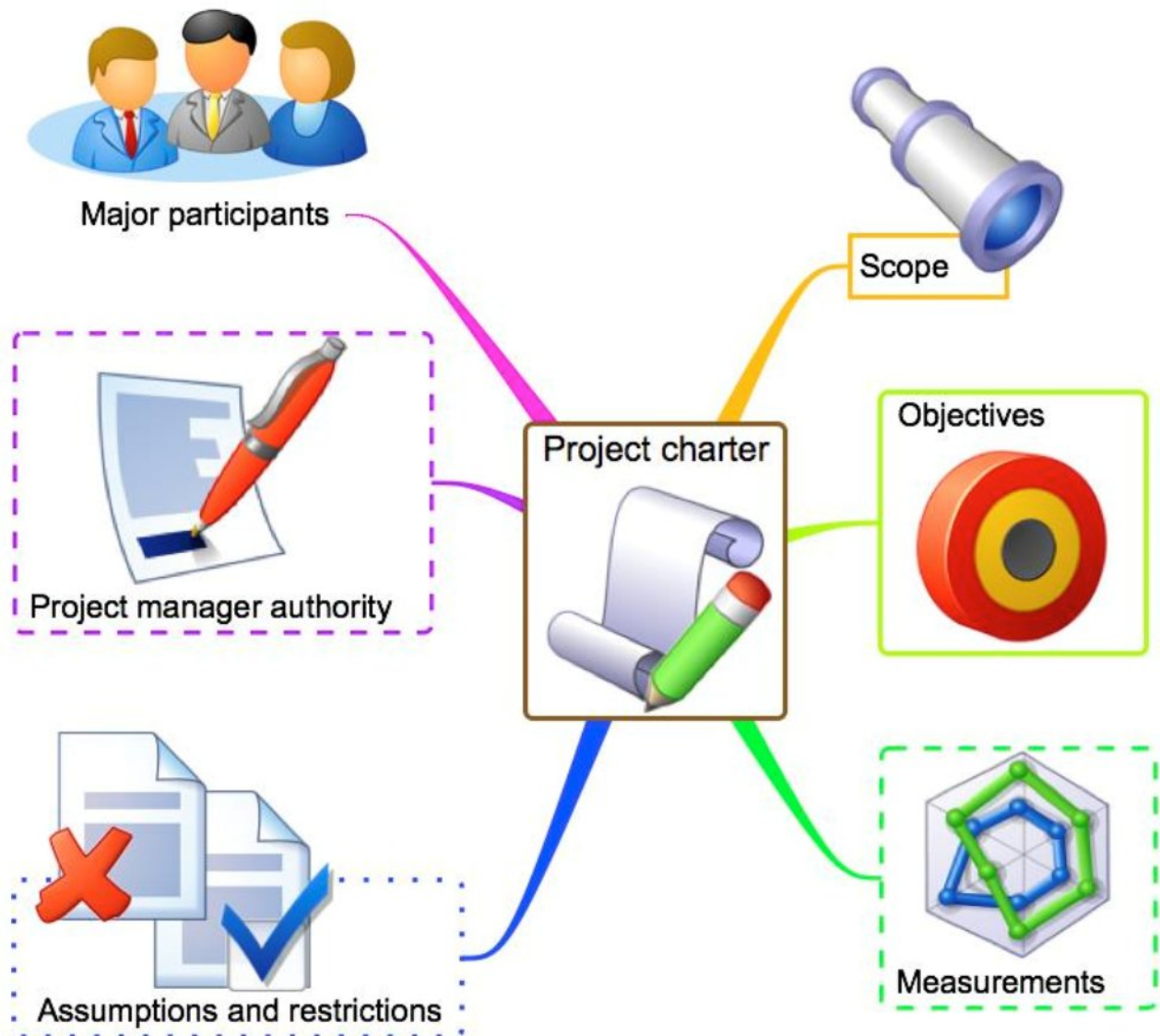
System analysis is a process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvement to the system.

System design is a process of planning a new system or replace or complement the existing system.

There are different types of requirements take place at the time of making project, which are as follow:

## 6. PROJECT PLANNING & SCHEDULING

### PERT (Program Evaluation and Review Technique) CHART



## Gantt Chart Gantt Chart

Tasks:								
Complete XHTML Markup								
Horizontal CSS Division								
Final CSS Styling								
Draft PHP Author Code Snippets								
Complete PHP								
Get Blog Content								
Testing + Final Tweaks								
<b>Week</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>

ProjectHelp

## 7. MODULARIZATION

"A modularization consists of well-defined manageable units with well defined interfaces among the units".

### Project Modules

#### a. Authentication Master :

This module is one of the important module of this project this module check the user who is login to the site that is valid user or not. If the user is valid then this module provides an interface where user can put there user name of password and by login in he can view all the necessary details.

#### b. Registration master:

When a user first visits the site then the first step is registration. By this module user fill appropriate information for registration. By registration user can register himself for the full access of the site.

#### c. Job description master

This module works as a complete information module. This module has complete information about job with their job code, job date and qualification, experience, location and contact details etc for that particular job. The job description interface represents all the information in a proper manner. User with the help of this can contact for the job and use can also apply for this job online.

#### d. Job application master

This module is work as an application form for job seeker, who wants to apply for the job online. User can fill appropriate field with the appropriate value then apply.

e. Validation Master

The Validation master put the validation all the data unit which has been inserted into the application and retrieved from application validation master makes sure that data should be regarding in a proper manner and it should be easy to understand.

f. Job category information Master

This module represents the various categories of jobs user can choose category of his choice and can view complete information. Jobs can be form various field like IT, Production and other.

g. Feedback Master

This module is basically for user by visiting the site if user feels they want to give any feedback or if they feel they have any problem regarding. Application they can submit that in the feedback form.

h. Job search master

This module in use to search the appropriate job for job seeker according to user search different package are display on the basis information for the job, and this module divide the job into several categories for fast searching.

i. Mail Management

Mail Management is also the important module of this project. By using mail management administrator can send various mails to the user of the site regarding update information of user and site.

j. Advertisement

This module contain list of all these advertisement which are to be displayed on the application. Advertisement or various pages should be displayed according to the information represented on various page

## 8. DATAFLOW DIAGRAM

Data flow diagrams are used to describe how the system transforms information. They define how information is processed and stored and identify how the information flows through the processes.

**i. Bubbles: -**

A circle or bubble represents that transform data from once form to another by performing some tasks with the data.

**ii. Data store:-**

A data store is place where data is held temporarily from one transaction to next or is stored permanently.

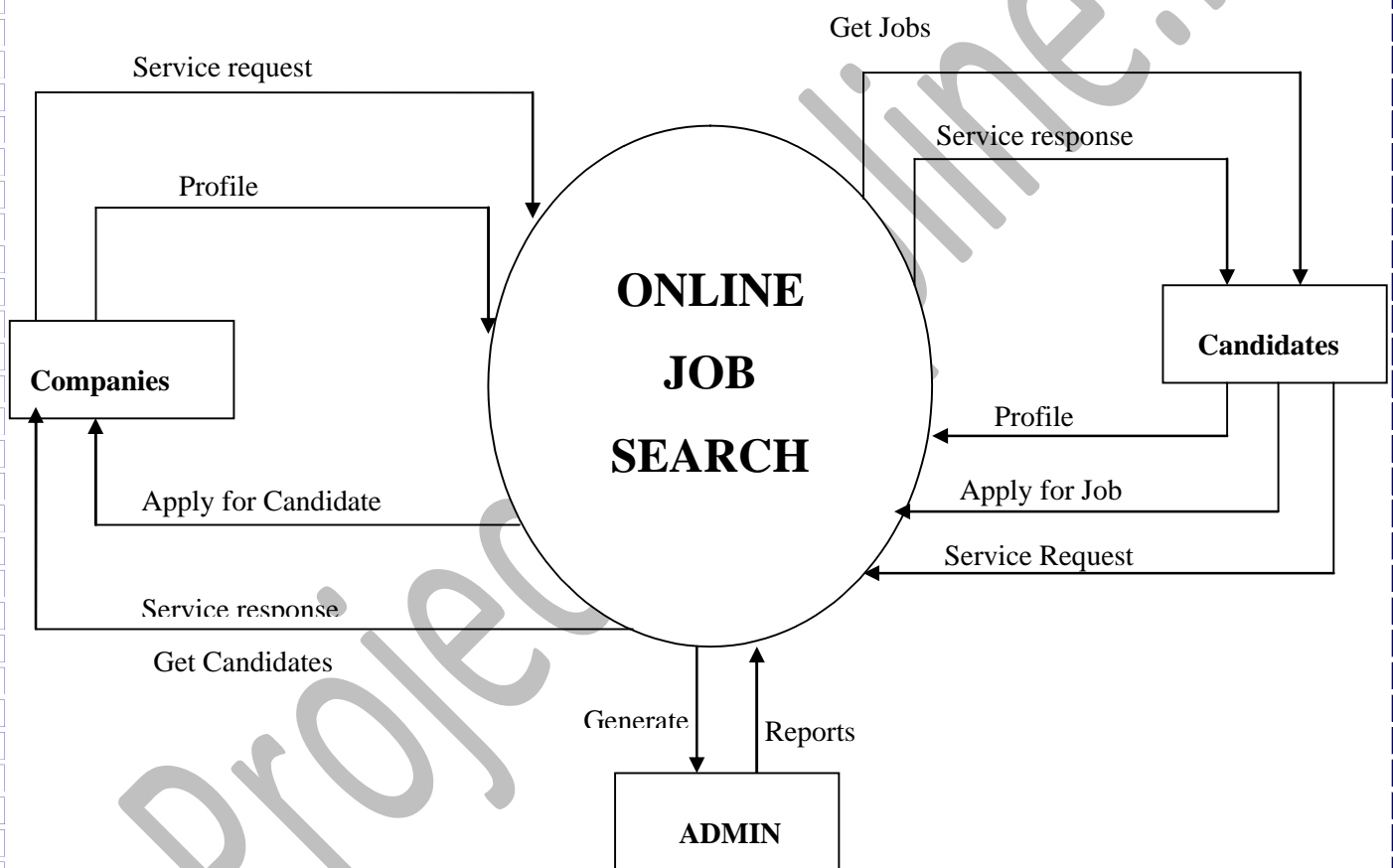
**iii. External Entity:-**

Which defines a source or destination of system data also called an external entity Based on the working process of the proposed system Data Flow Diagram (DFD) is a model, Which gives the insight into the information domain and functional domain at the same time can be drawn using OMT symbols, DFD is refined into different levels. The more refined DFD is details of the system are incorporated. In the process of creating a DFD, we decompose the system into different functional subsystems. The DFD refinement results in a corresponding refinement of data.

The DFD of the "ONLINE JOB SEARCH"

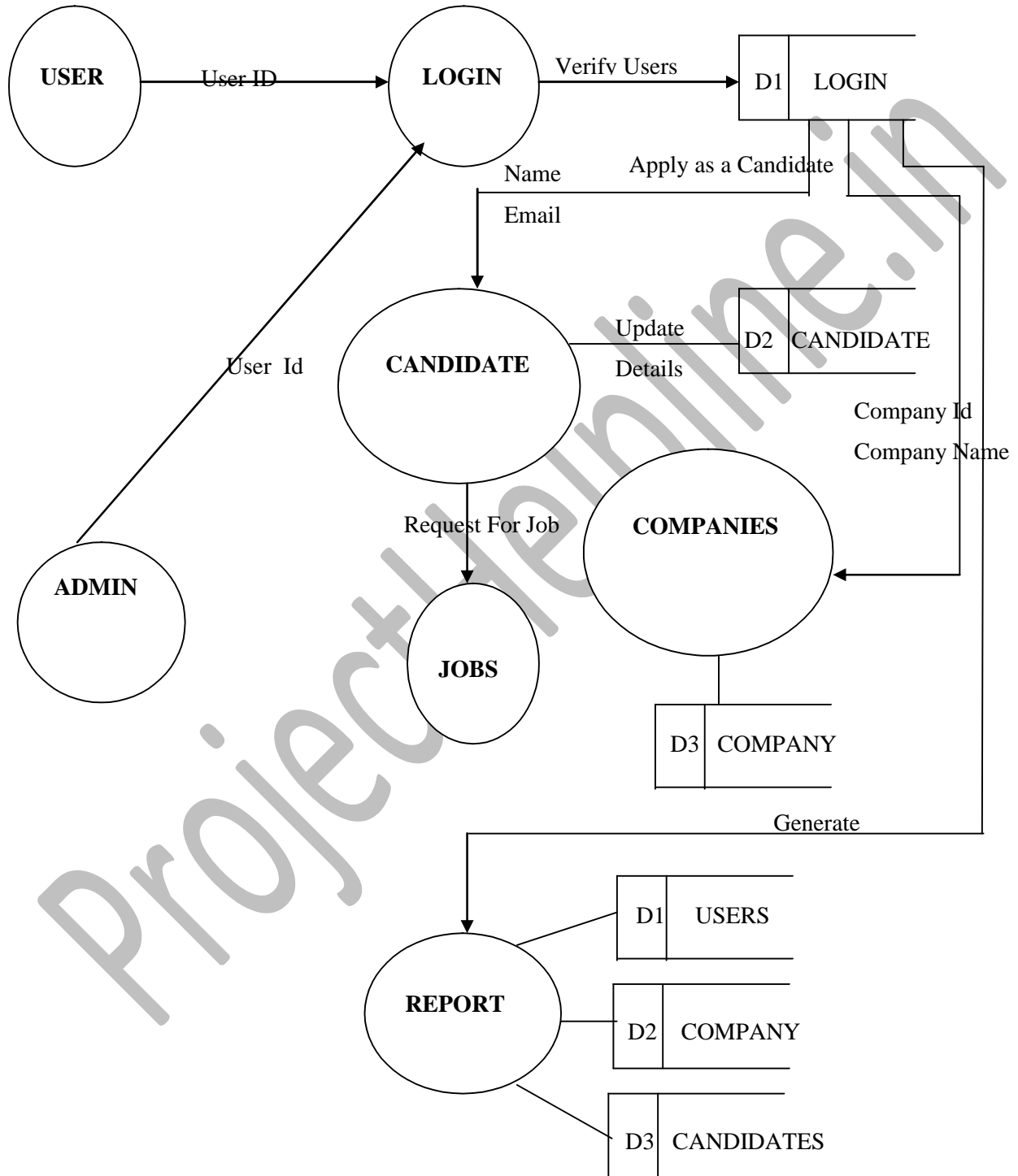
DATA FLOW DIAGRAM

CONTEXT LEVEL DFD

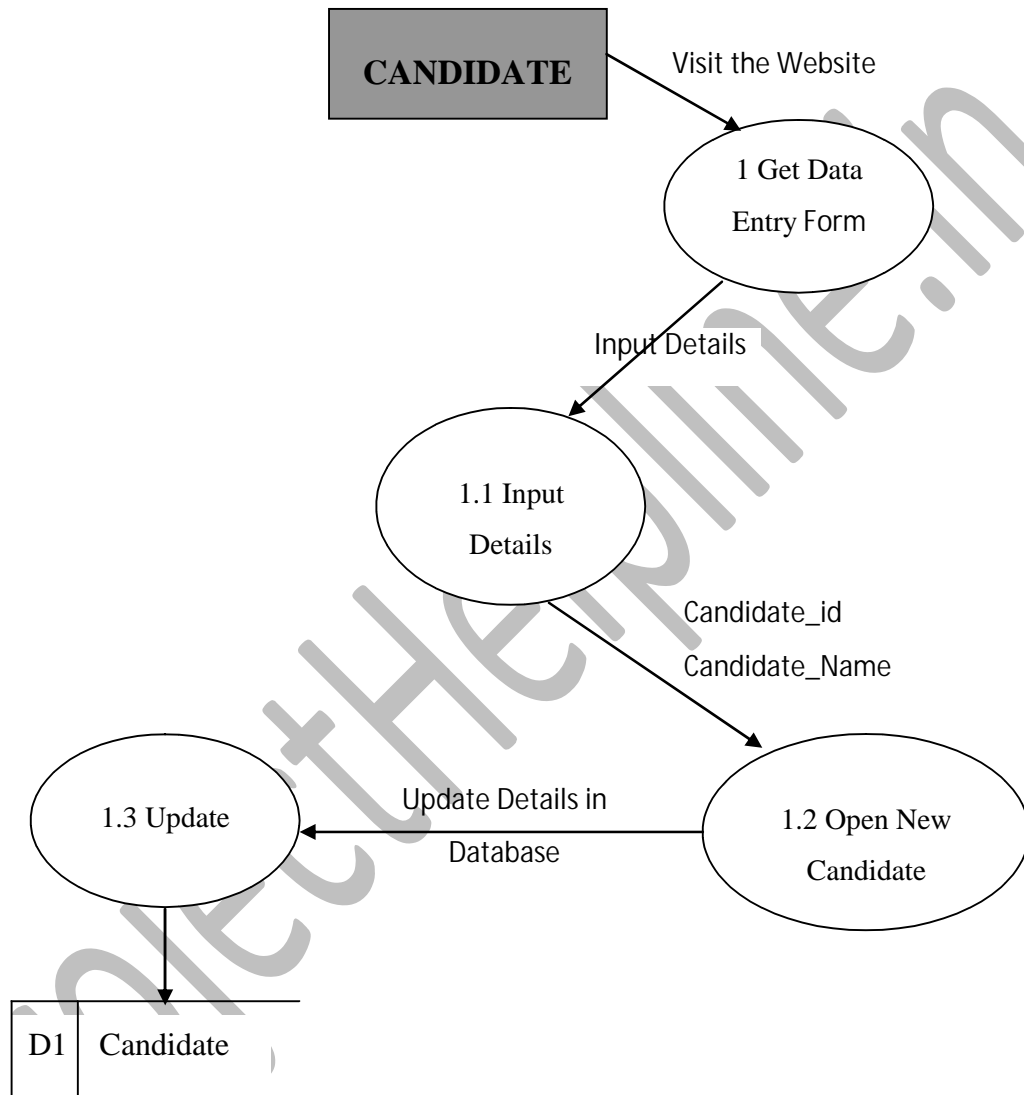




## Ist Level DFD For BPO JOB PORTAL

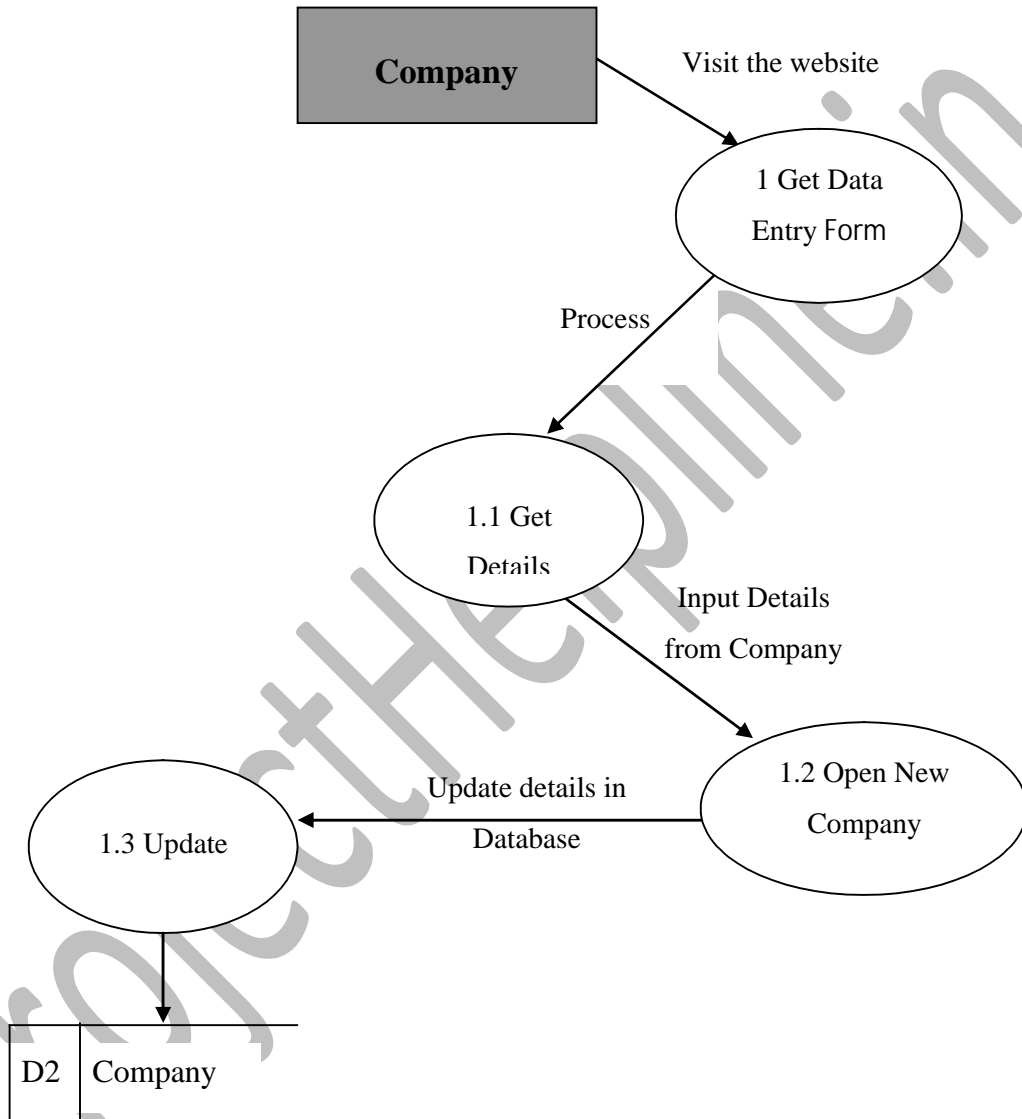


## IIInd Level ADDING A NEW CANDIDATE



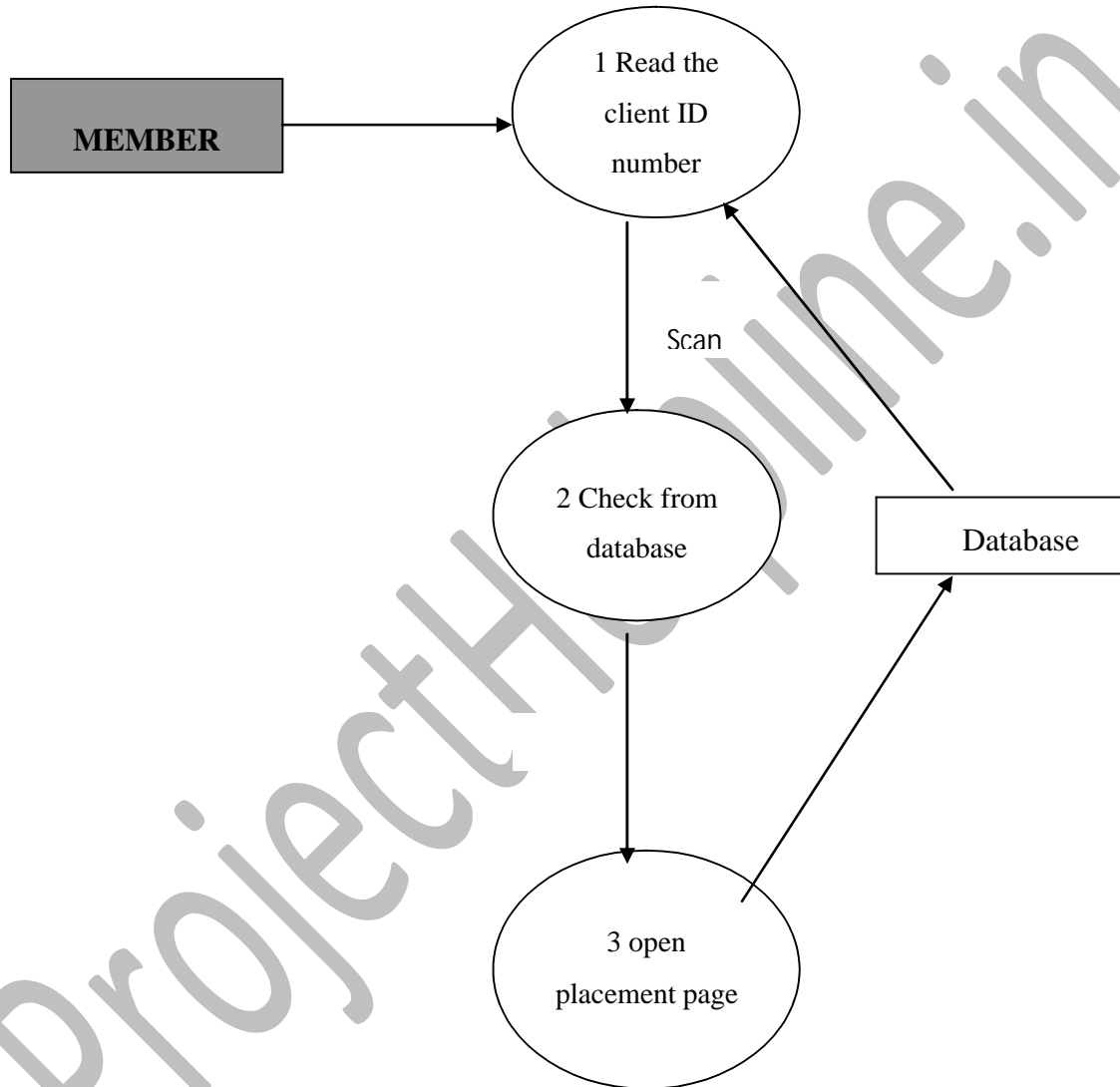
## Ind Level DATA FLOW DIAGRAM

### ADDING A NEW Company



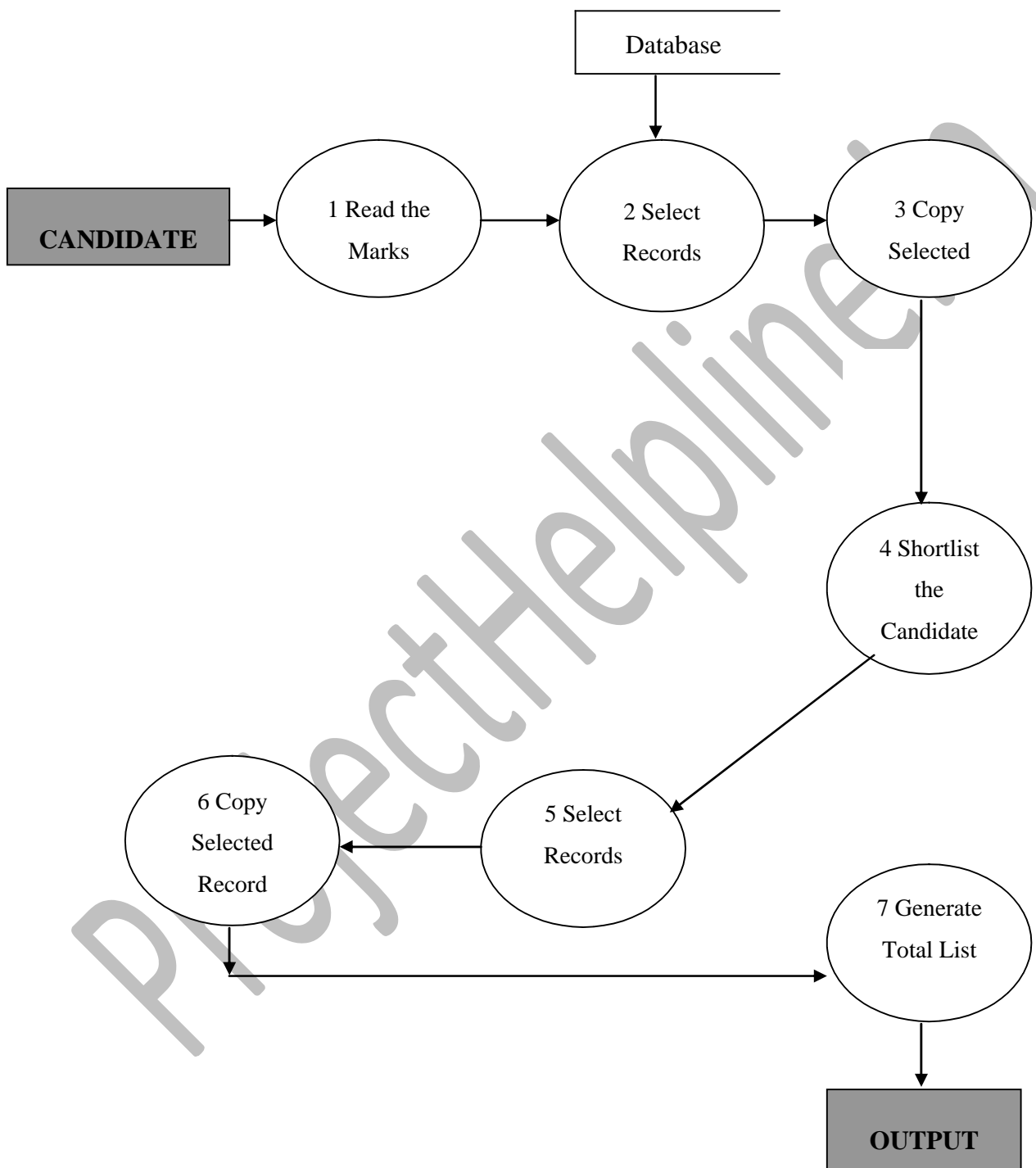
## Ind Level DATA FLOW DIAGRAM

### FOR LOGIN



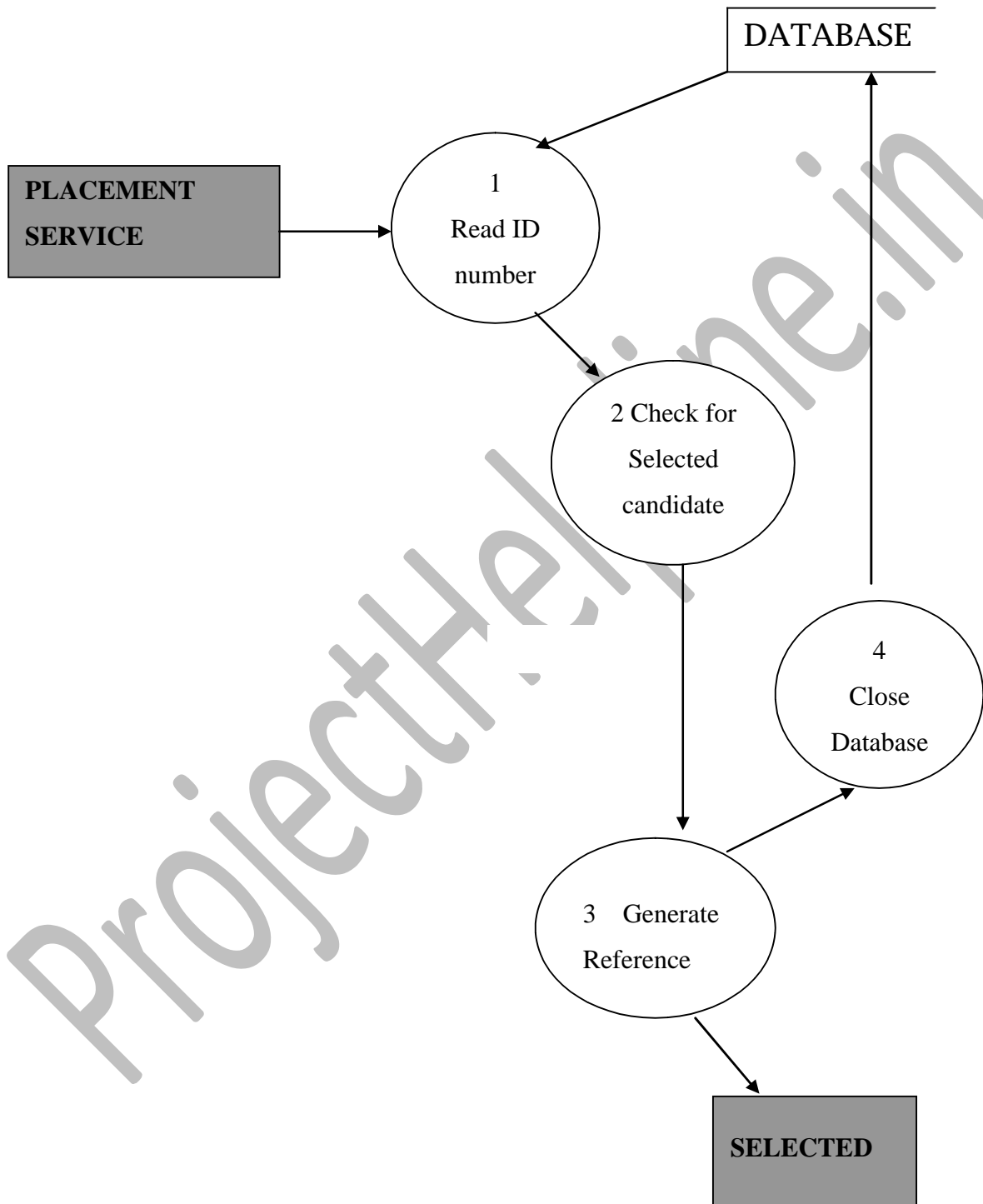
## IInd Level DATA FLOW DIAGRAM

### LISTING OF SELECTED RECORDS



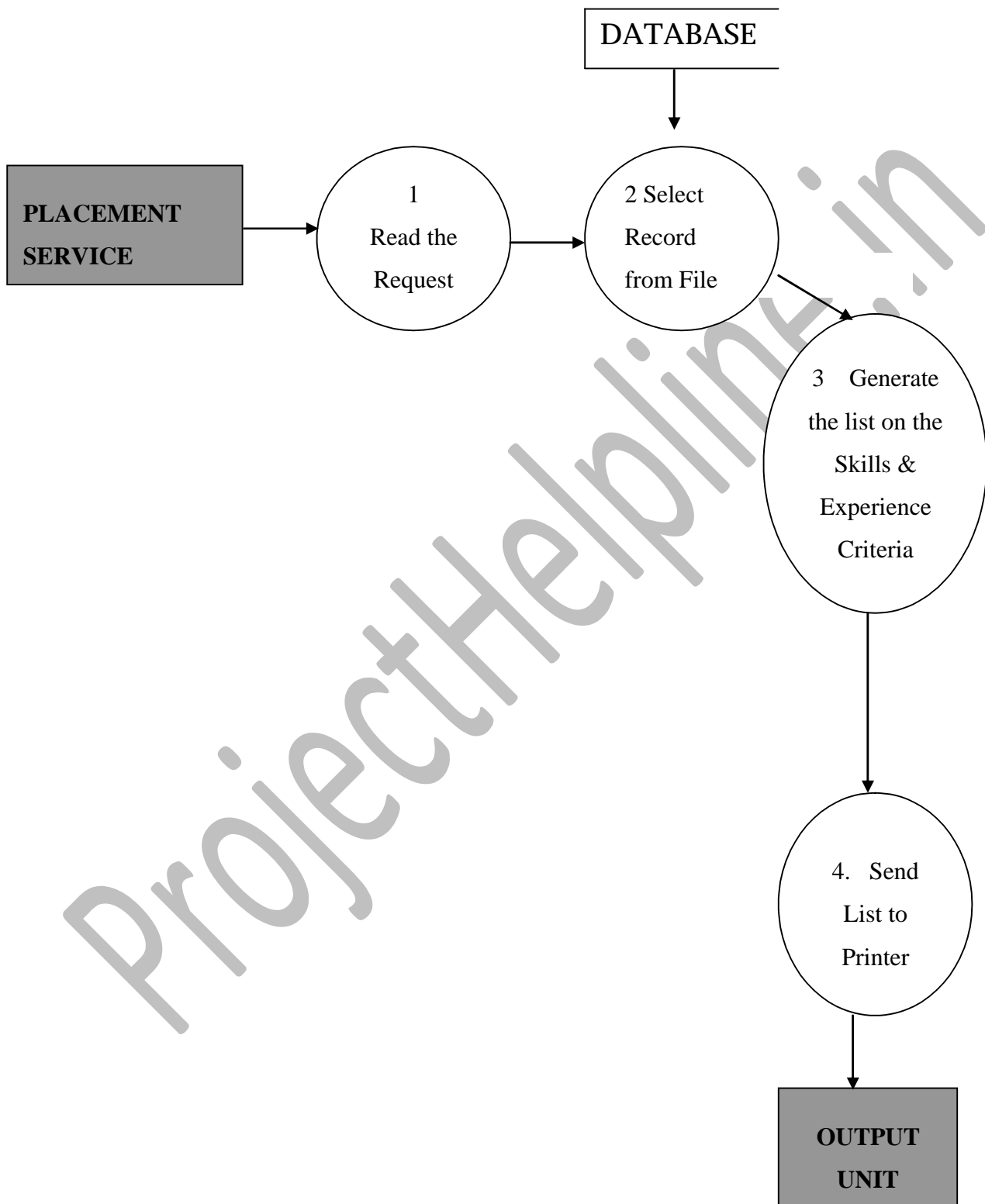
## IInd Level DATA FLOW DIAGRAM

### GENERATING OF REFERENCE RECORDS



## IIInd Level DATA FLOW DIAGRAM

### LIST OF ALL RECORD



9. E-R data flow diagram

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## 10. PROCESS LOGIC OF EACH MODULE

Authentication Master :

This module is one of the important module of this project this module check the user who is login to the site that is valid user or not. If the user is valid then this module provides an interface where user can put there user name of password and by login in he can view all the necessary details.

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### Job search master

This module in use to search the appropriate job for job seeker according to user search different package are display on the basis information for the job, and this module divide the job into several categories for fast searching.

## 11. DATA BASE DESIGN (DATA STRUCTURES)

Registration Table			
Field Name	Data Type	Description	Key constraint
User-Id	Varchar(45)	User ID (unique)	Primary key
Password	Varchar(45)	Password	Not null
First name	Varchar(45)	First name of User	Not null
Last name	Varchar(45)	Last name of User	Not null
D .O .B	Datetime	Date of birth	Not null
Sex	Varchar(45)	Sex	Not null
Marital_ status	Varchar(45)	Matrimonial status	Not null
Phone	integer	Phone Number	Not null
Mobile no.	integer	Cell Number of user	Not null
Address	Varchar(45)	Address of User)	
Country id	Varchar(45)	Country number	Primary Key
State_id	Varchar(45)	State Number	Not null
Zip_code	integer	Postal index number	Not null
Hobby	Varchar(45)	Hobby	Not null
Regist_date	Varchar(45)	Registration date	Not null

State details			
Field Name	Data Type	Description	Key constraint
Country_id	Varchar(45)	Country id	Primary key
State_id	Varchar(45)	State id	Primary key
State	Varchar(45)	State	Not null

Country detail			
Field Name	Data type	Description	Key constraint
Country id	Integer	Country Id	Primary key
Country	Varchar(45)	Country Name	Not null

Job details			
Field Name	Data Type	Description	Key Constraint
Company_Id	Varchar(45)	Companyid	Primary Key
Job_Id	Varchar(45)	Job Id	Primary key
Field	Varcahr	Field	Not null
Job_title	Varchar(45)	Title	Not null
Experience_Range	Varchar(45)	Experience	Not null
Salary	Varchar(45)	Salary	Not null
Whether_Negotiable	Char	Yes/No	Not null
Date_Uploaded	Date	Date	Not null
Date_Expires	Date	Date	Not null
Whether_Recuirment Closed	Char	Yes/No	Not null
Office_Id	Varchar(45)	Office Id	Primary Key
Functional Area_ Id	Integer	Functional Area Id	Primary Key

Sub_functional Area_Id	Integer	Sub Functional Area	Primary Key
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Candidate information			
Field Name	Data Type	Description	Key Constraint
User_Id	Varchar(45)	User id	Primary Key
Shortlist_Id	Varchar(45)	Shortlist id	Primary Key
Confirmation	Varchar(45)	Yes/No	Not null
Date_Choosed	Datetime	Choose a date	Not null

Job information			
Field Name	Data Type	Description	Key Constraint
Job_code	Varchar(45)	Code of job	Primary key
Job_type	Varchar(45)	Type of job	Not null
User_id	Varchar(45)	User id	Primary key
User_name	Varchar(45)	Users name	Not null
Applied_date	Datetime	Date applied	Not null
Status	Varchar(45)	status	Not null

Admin			
Field Name	Data Type	Description	Key Constraint
Admin_user	Varchar(45)	Admin user	Primary Key
admin_password	Varchar(45)	Password	Not null

## 12. REPORT GENERATION MODULES

### 1. Daily Report

This module is used to generate detailed report about the candidate who got the call from the employers. The contents of this report is stored in order to make future enquires.

### 2. Short listed Candidate

This module is used to generate the detailed report of short listed candidate so that candidate can be informed for further formalities.

### 3. Employers' Search

This module is used to generate the candidate list when employers provide the certain criteria to search the candidate. The records are kept in the table for future use.

### 4. Candidate Search

This module is used to generate the data when candidate searches the job by providing the certain criteria he gets the list of the employers on the basis of criteria if he post his resume to them then their record must be kept so that in future the candidate could not post his resume again for the same post.

## 13. SYSTEM SECURITY

### Software's Vulnerability to Attack

Software development is not yet a science or a rigorous discipline, and the development process by and large is not controlled to minimize the vulnerabilities that attackers exploit.

The security of software is threatened at various points throughout its life cycle, both by inadvertent and intentional choices and actions taken by "insiders"—individuals closely affiliated with the organization that is producing, deploying, operating, or maintaining the software, and thus trusted by that organization—and by "outsiders" who have no affiliation with the organization. The software's security can be threatened

- during its development: A developer may corrupt the software—intentionally or unintentionally—in ways that will compromise the software's dependability and trustworthiness when it is operational.
- during its deployment (distribution and installation): If those responsible for distributing the software fail to tamperproof the software before shipping or uploading, or transmit it over easily intercepted communications channels, they leave the software vulnerable to intentional or unintentional corruption. Similarly, if the software's installer fails to "lock down" the host platform, or configures the software insecurely, the software is left vulnerable to access by attackers.
- during its operation: Once COTS and open source software has gone operational, vulnerabilities may be discovered and publicized; unless security patches and updates are applied and newer supported versions (from which the root causes of vulnerabilities have been eliminated) are adopted, such software will become increasingly vulnerable. Non-commercial software and open source software (OSS) may also be vulnerable, especially as it may manifest untrustworthy behaviors over time due to changes in its environment that stress the software in ways that were not anticipated and simulated during its testing.
- during its sustainment: If those responsible for addressing discovered vulnerabilities in released software fail to issue patches or updates in a timely manner, or fail to seek out and eliminate the root causes of the vulnerabilities to prevent their perpetuation

in future releases of the software, the software will become increasingly vulnerable to threats over time. Also, the software's maintainer may prove to be a malicious insider, and may embed malicious code, exploitable flaws, etc., in updated versions of the code.

The Challenge of Building Secure Software:

1. Dependability: Dependable software executes predictably and operates correctly under all conditions, including hostile conditions, including when the software comes under attack or runs on a malicious host.
2. Trustworthiness: Trustworthy software contains few if any vulnerabilities or weaknesses that can be intentionally exploited to subvert or sabotage the software's dependability. In addition, to be considered trustworthy, the software must contain no malicious logic that causes it to behave in a malicious manner.
3. Survivability (also referred to as "Resilience"): Survivable—or resilient—software is software that is resilient enough to (1) either resist (i.e., protect itself against) or tolerate (i.e., continue operating dependably in spite of) most known attacks plus as many novel attacks as possible, and (2) recover as quickly as possible, and with as little damage as possible, from those attacks that it can neither resist nor tolerate.



## 14. FUTURE SCOPE

This Online Job Search enables the web application team to work without having to accommodate a continual stream of change but still recognizes the continuous evolution characteristics of most web application.

Besides that, the following basic quality in the software always safeguards the future scope of the software.

### Correctness:-

When a program functions correctly according to their specification that it show the quality of correctness to the definition of correctness the specification of the system that determine unambiguous. Whether a program meets the specification

### Reusability:

Reusability is possible as and when we required in this application. We can update its next version. Reusable software reduces design, coding and testing cost by amortizing effort over several designs. Reducing the amount of code also simplified understanding, which increases the likelihood that the code is correct. We followed up both types of reusability as sharing of newly written code within a project and reuse of previously written code on new projects.

### Extensibility:

This application software is extended in ways that its original developers may not expect. The following principles enhance extensibility like hiding data structures, avoiding traversing multiple links or methods, avoiding case statements on object type and distinguishing public and private operations.

### Robustness:

Its method is robust and it will not fail even if it receives improper parameters. There are some alert pages and messages are flashed out with some dialogue boxes to warn and inform the end user about the current processes going on. It also interacts with the user by alerting them about invalid parameters.

Understandability:

A method is understandable if anyone other than the developer of the method can understand the code (as well as the developer after a time-span).

Cost-effectiveness:

Its cost is under the budget and developed within given time period. It is always desirable to aim for a system with a minimum cost subject to the condition that it must satisfy all the requirements.

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