

Development of Intelligence Process Tracking System for Job Seekers

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Abstract:

At the present time to getting a good job is very intricate task for any job seekers. The same problem also a company can face to acquire intelligent and qualified employees. Therefore, to minimize the problem, there are many management systems were applied and out of them, computer based management system is one of an appropriate elucidation for this problem. In the computer management system, software are made for jobseekers to find their suitable companies and as well as made for companies for finding their suitable employees. However, the available software in the market are not intelligent based, and to make privacy, security and robustness, the software should made with the application of expert system. In this proposed study, an attempt has been made for finding the solution for job seekers and the companies with the application of expert systems.

Keywords: Intelligent System, Expert System, Process Tracking System, JAVA

1. INTRODUCTION

Applicant tracking and recruiting systems originally relied on keyword-matching algorithms to identify candidates with the right skills and experience for a position—and to rule out unqualified candidates. Job seekers who were unaware of these systems but otherwise qualified for the job sometimes got eliminated before human eyes even perused their résumés because they didn't know how to gear their resumes to these systems. Meanwhile, tech-savvy job seekers quickly learned to game them. In this proposed research work, the aim is to design intelligent software which is based on the process tracking system for the job seekers. This proposed work or software will design with the advanced JAVA system [1-3].

In general, Tracking is one of the key management activities. Tracking of work processes can be organized by using **process tracking system**. Such a system is a combination of tools to plan, monitor, evaluate and report work processes. **Process tracking system** proves to be a great

assistant in improving employee productivity and increasing corporate profits, and it does all these by replacing inefficient paper-based workflows with electronic-based processes. With this background, the proposed work will be carried out. Before developing any software, it is essential to know the basic knowledge of the algorithm on which the codes are written and the portfolio of the system [4-5].

The general information of a *process tracking system* state that companies looking for process management and tracking tools can no more be worried about efficiency of their work processes, because *process tracking open source solution* allows supporting employee collaboration, increasing accountability, minimizing compliance risk and avoiding errors. It establishes a *process tracking model* that helps ensure workflows comply with process requirements and users can respond to *process tracking changes* correctly. However *Process tracking software* helps organizations in establishing an efficient process management system to control, capture and manage all information required for critical process tracking. Organizations are enabled to easily monitor which employees have completed which tasks within daily workflows. Systems for process tracking allow recording changes occurred in processes. All information on changes is recorded in special *process tracking logs*. Only permitted users can access this information for audit purposes [6-7].

The proposed system is designed for job-seekers which has the following advantages:

1. Better control of processes and tasks because all information is stored in a central database and there's no more need to keep papers for monitoring workflows
2. Safe and easy access to the database through corporate network.
3. Employees can use their computers connected to the network to log in the database and view *process tracking events*.
4. Advanced *process tracking reporting* that allows managers to get reports on employee performance and monitor process efficiency
5. Tracking
6. Management
7. Communication
8. Accountability
9. Transparency

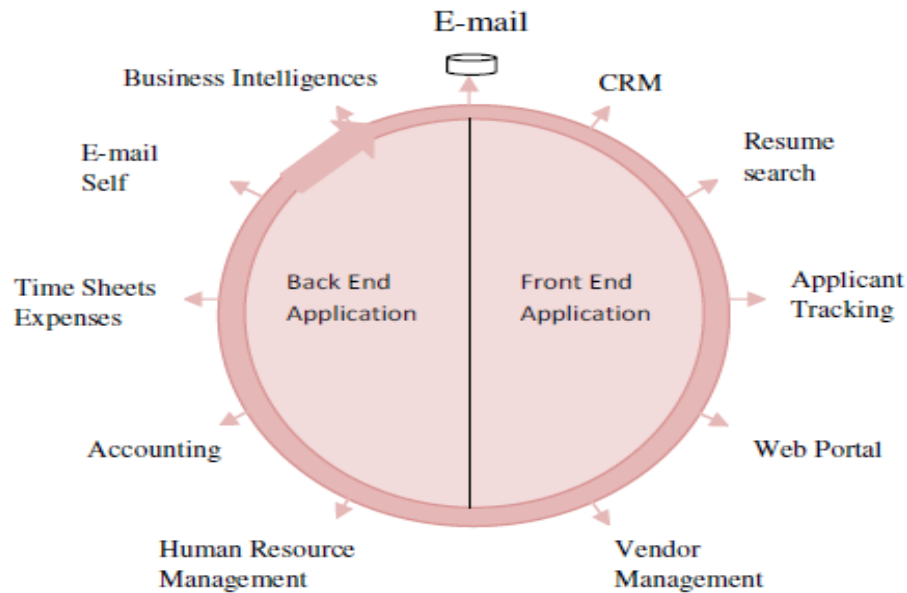


Fig.1. Features of Process Tracking Software for Job Seekers

2. INTRODUCTION TO EXPERT SYSTEM

From the Literature an Expert System can be defined as a computer program that uses artificial intelligences to solve engineering or computer related problems within a specialized domain that ordinarily required human expertise [8-9]

The main goal of an Expert System is to understand intelligences by building computer programs that exhibit intelligent behaviors. It is concerned with the concepts and methods of symbolic inference or regenerating by computer and how the knowledge used to make those inferences will be represented [9].

To design an expert system one needs a knowledge database and an individual, who studies how human experts make decisions and translate the rules into terms that the computer can understand. In order to accomplish feats of apparent intelligence, an expert system relies on two components:

- Knowledge Base (Information of Rules and Information of Input Parameters)
- An inference engine

The general structure of an Expert System is represented in Figure 2. A Knowledge base is an organized collection of facts about the system domain and an inference engine interprets and evaluates the facts in the knowledge base in order to provide an answer. Typical tasks of an expert system involve classification, diagnosis, monitoring, design, scheduling and planning for specialized endeavors. In general, knowledge is acquired from human experts through interviews.

and observations This knowledge is than usually represented in the form of IF-THEN (production rule) [10-12].

The following general points about expert system and their architecture have been outline.

- The sequences of steps taken to reach a conclusion dynamically synthesis with each new case, the sequence is not explicitly programmed at the time. that the system is build
- Expert system can process multiple values for any problem parameter
- Problem solving is accomplished by applying specific Knowledge rather than specific techniques
- Mimic the reasoning capability of human experts
- Deal with incomplete and imprecise knowledge
- Explain and provide a rationale for conclusions
- Provide alternate options for consideration
- Provide wider distribution and access to scarce expert knowledge; and
- Provide systematic and consistent application of knowledge

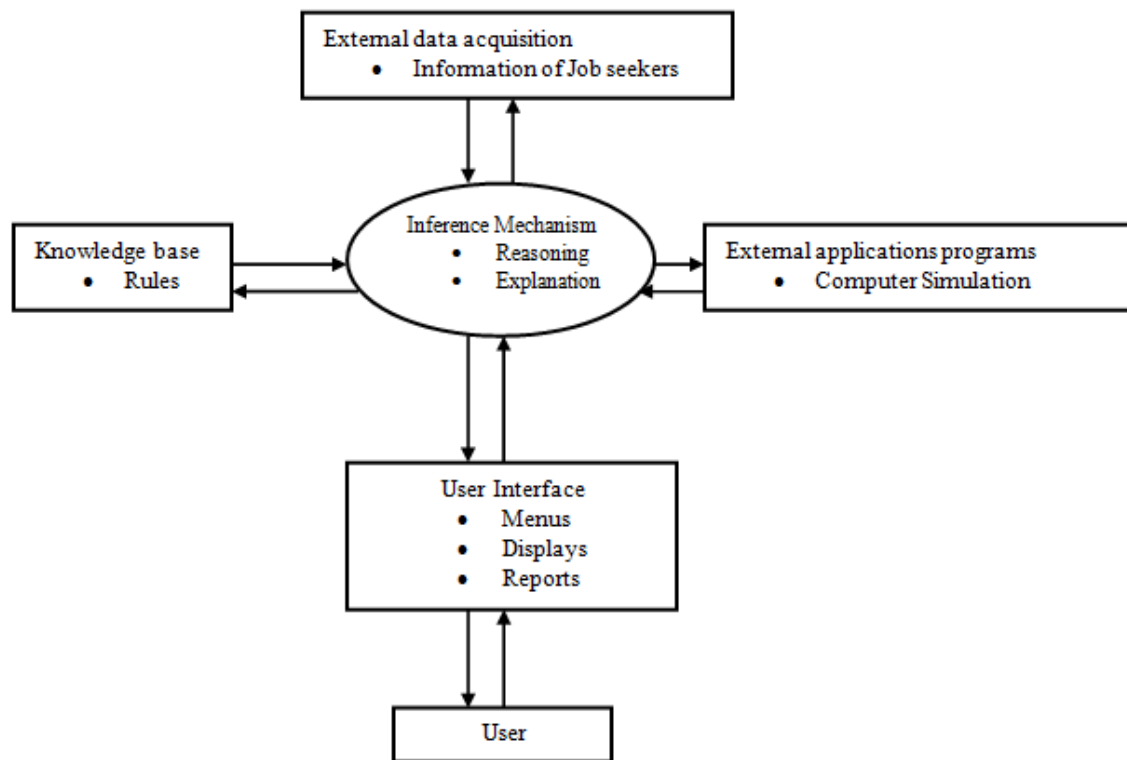


Figure 2: General architecture or state flow diagram of Expert system.

Applications of expert systems were successfully implemented in many areas, like environmental engineering, bio-medical application, electronics, pattern reorganization, image processing, agriculture etc [13-15]. However, in data mining or software development, expert-system applications are less. In this proposed work or the proposed expert system is designed with a

particular rule base, which are essential requirements for the defined problem .This proposed expert system designed with Java & J2EE and the details are described in the following sections .

3. Development of proposed expert system

In this proposed research work and export system has been designed for the jobseekers. Earlier the software designs for the jobseekers are not based on any kind of intelligences information. This software is unable to provide proper information for a jobseekers and job giving companies.

Therefore expert system based software is needed for the jobseeker and as well as job given companies to minimize their administration stress. This proposed work has been devolved by Java & J2EE and its flowchart is represented in fig-3 .The system architecture of the process tracking system for jobseekers are represented in fig-4 [16-18].

Mathematically the expert system has-been described as follows:-

Information of the applicants= A_i { $i=1,2,3,\dots,N$ }

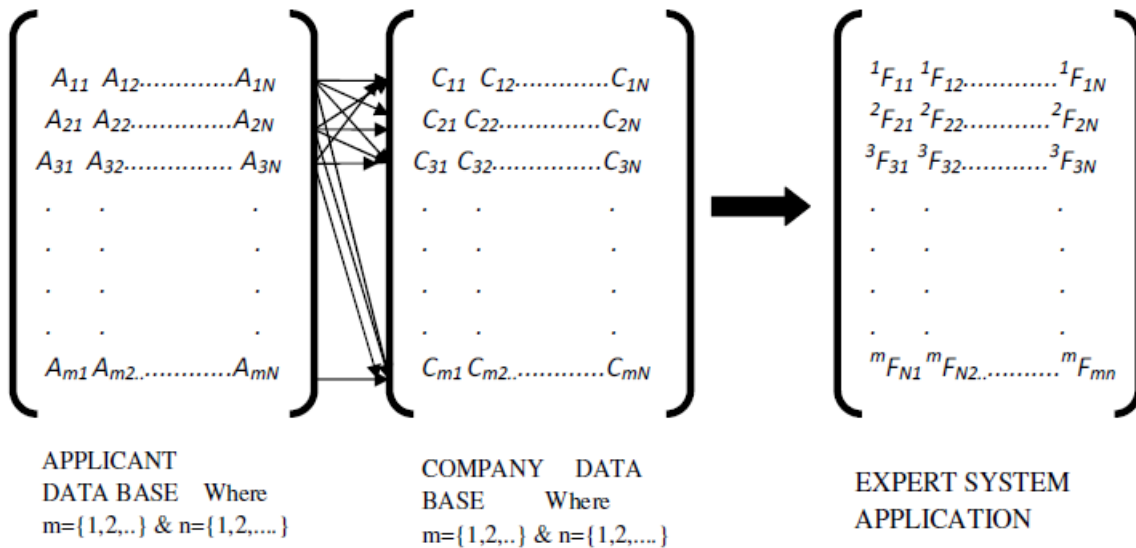
Data base of the information of the Applicant= $A=[A_i]$ { $i=1,2,3,\dots,N$ }

Information of the job wanted Company = C_j { $j=1,2,3,\dots,N$ }

Data base of the Company= $C = [C_j]$ { $j=1,2,3,\dots,N$ }

Export System that all the information, may take 'U'

$$U=[A_i, C_j] \text{ where } \{i \neq j\}$$



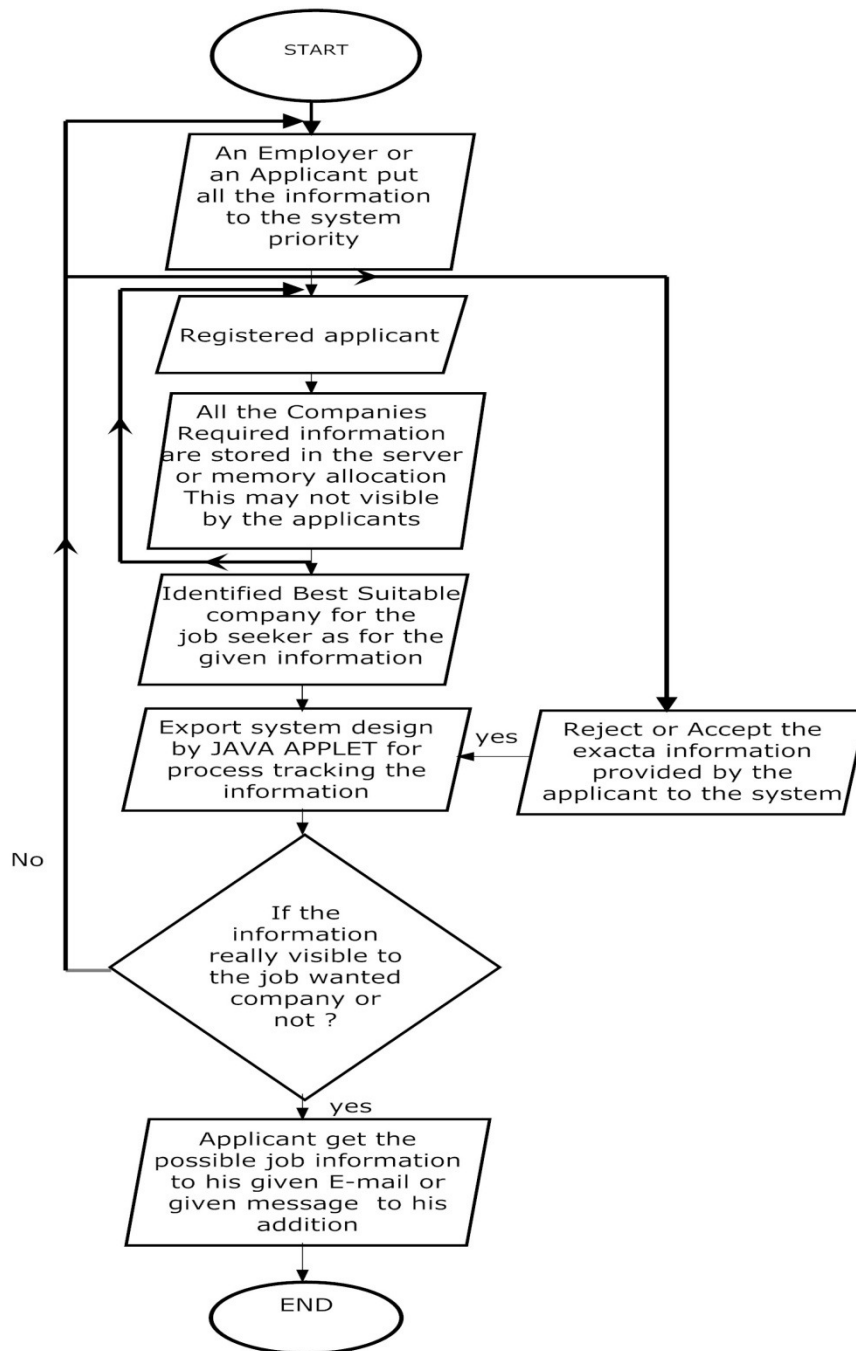


Figure 3: Flow chart of the Intelligence Process Tracking System

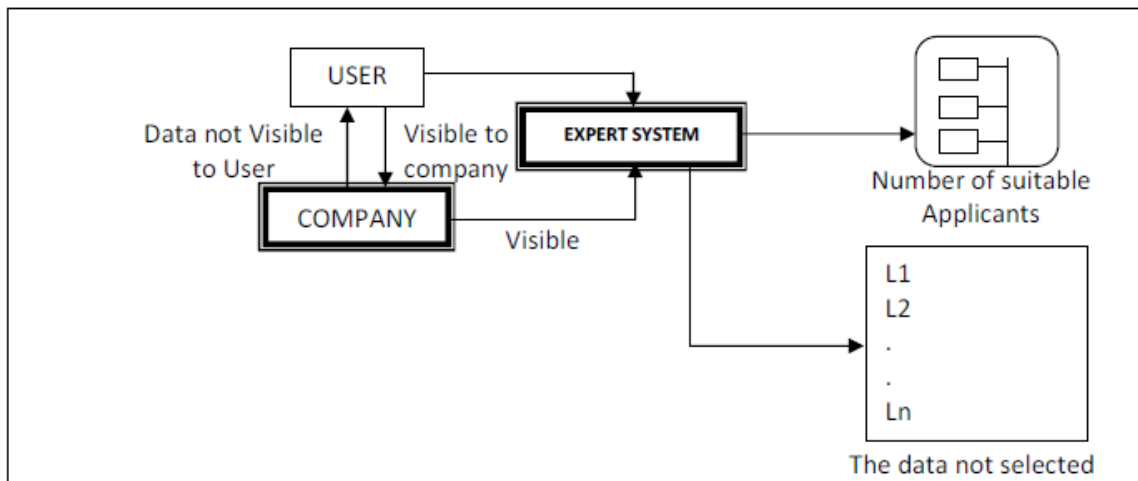


Figure: 4: System Architecture of Proposed Intelligence based Process Tracking System

The proposed system is based on the following algorithm

3.1.1 Algorithm for selection of RULES:-

Let $R_1, R_2, R_3, \dots, R_n$ is the requirements for the companies & R_1, R_2 must be satisfied by the Applicants.

Let R_1 =Age below 30 years,

R_2 =Having throughout first class carrier ,.....

```

{ Starting of the algorithm
For i=1 to N step 1
IF  $A_i$ (applicant) satisfied  $R_1$ 
{
THEN its Registration is made
IF  $A_i$  again satisfies  $R_2$ 
{
THEN the form completely selected & suitable for the companies.
}
}
ELSE
The registration form is rejected
} End of the Algorithm
    
```

The proposed develop model is a useful model for both job seekers and job applicants. Before comes to result and discussion the followings are the advantage of the proposed system:

3.1.2 Advantages of the Proposed System in programming point of view:

- Attract and encourage more and more candidates to apply in the organization.
- Lower costs to the organization also posting jobs online in cheaper than advertising in the newspapers.
- No intermediaries.

- Reduction in the time for recruitment.
- Facilities the recruitment of right type of people with the required skills.
- Online recruitment helps the organizations to weed out the unqualified candidates in an automated way.
- It also provide valuable data and information regarding the compensation offered by the competitors etc. which helps the HR managers to take various HR decisions like promotions, salary trends etc.

4. Result and Discussion

This proposed work was simulated using JAVA 2 (JDK2.0) with Pentium 4 processor (3.2 GhZ, Clock speed), 320 GB memory space, 2 GB of internal memory based personal computer. All the simulation result represented with the help of internet explorer, Windows XP, service pack 3. The preliminary simulation work represented in Figure 5 as a consultant home page or login page. If this figure was not generated, it was meaning that the expert system design with JAVA has no significance. Hence figure 3 represent the actual response of the proposed system. After getting authenticated information from the user, then the system goes for next stage and that is the registration process. Figure 6 represented this registration process of the system. If the system getting unusual information from the user then the system cannot gating valid consultant information and these are highlighted from Figure 7 to Figure 8.

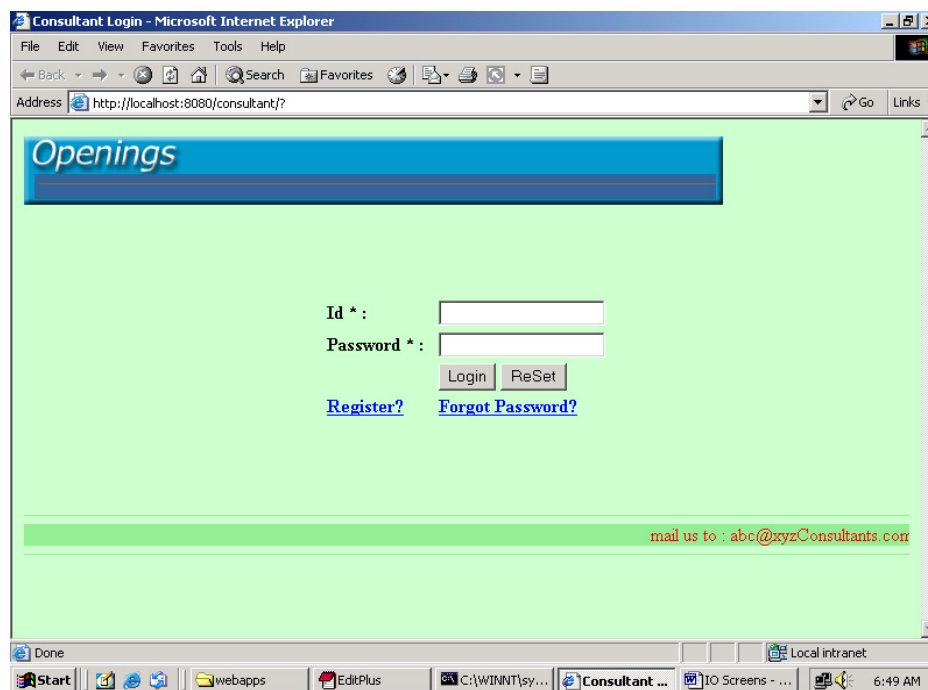


Figure 5. Consultant Home Page / Login Page

Consultant Registration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address <http://localhost:8080/consultant/CRegister.jsp> Go Links

Openings

Consultant Registration : Fields marked by * are mandatory

Id *

Password *

Confirm Password *

Name *

Email *

Secret Question *

Answer *

Done Local intranet

Start webapps EditPlus C:\WINNT\sy... Consultant ... IO Screens - ... 6:52 AM

Figure 6. Consultant Registration Page

Consultant Registration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address <http://localhost:8080/consultant/CRegister.jsp> Go Links

Openings

Consultant Registration : Fields marked by * are mandatory

Id *

Password *

Confirm Password *

Name *

Email *

Secret Question *

Answer *

Microsoft Internet Explorer

cid should not be NULL

OK

Local intranet

Start webapps EditPlus C:\WINN... Consulta... IO Screen... 6:54 AM

Figure 7. Error Message appears when consultant give wrong information

Consultant Registration : Fields marked by * are mandatory

Id *

Password *

Confirm Password *

Name *

Email *

Secret Question *

Answer *

Sorry! Unable to Register
Please Enter All the Mandatory Fields.

Figure 8. Valid Menu appear after providing correct data.

The valid consultant getting authenticated information from the expert system as an e-mail notification or mobile messages. Consequently, the authenticated or valid consultant only able to access the information of the Job Provider Companies, which is graphically represented in the system block (Figure 4). According to system architecture, the consultant now getting information on job ads and the simulation study is represented in figure 9. Similar steps for job provider companies were represented from figure 10 to 12. From figure 10 to 12, it was seen that job provider companies getting useful information as similar to job seekers.

List Of Job Advertisements

Job ID	Employer ID	Job Position	Required Qualification	Required Key Skills
2	wipro	Junior S/W Engineer	Any	CORE AND ADVANCED C
1	wipro	Senior S/W Engineer	M.Tech (Computers)	CORE JAVA,J2EE
3	wipro	Team Leader	M.Tech (Computers)	CORE JAVA,J2EE,STRUTS,HIB

[Edit Profile](#)
[Industry Types](#)
[Qualifications](#)
[Get Employers List](#)
[Get Job Seekers List](#)

mail us to : abc@xyzConsultants.co

Figure 9: Consultant Clicks View Job Ads

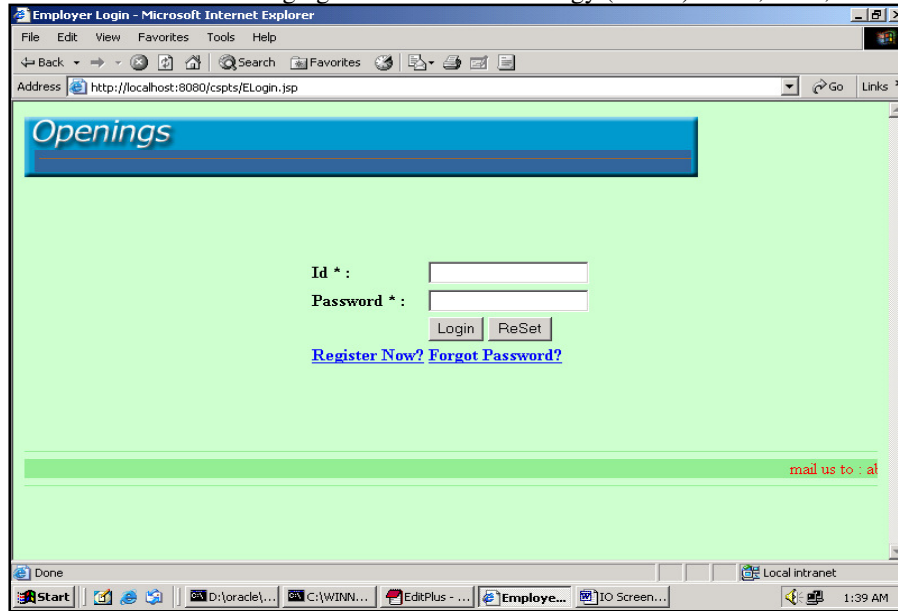


Figure 10: Employer or Job Providing Companies Login page

Figure 11: Employer or Companies Register Page

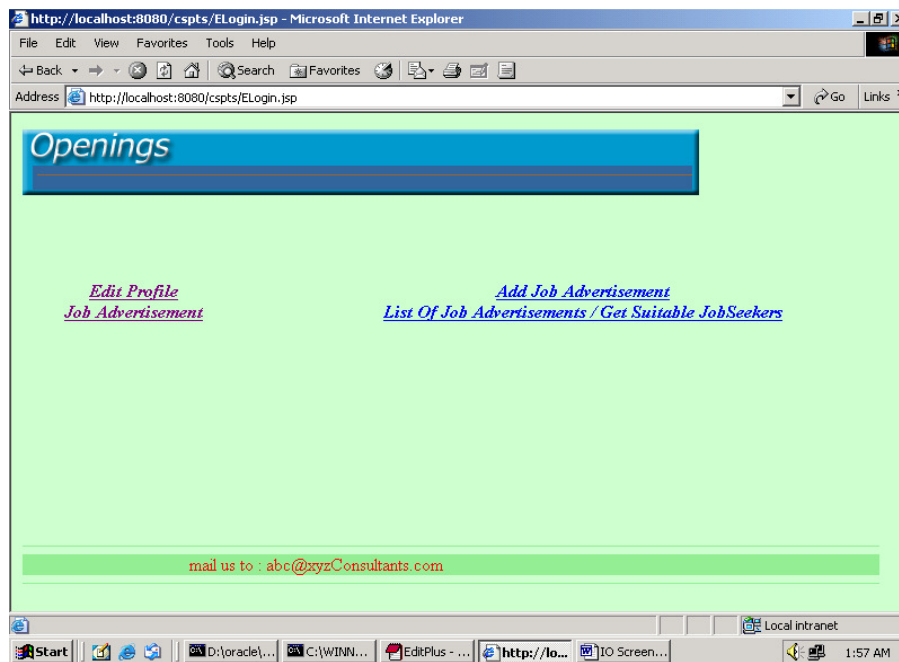


Figure 12: Employer or Companies Click Job Advertisement

5.Conclusion

The designed expert system has an aim to make an intelligent relationship between user or consultant and job provider companies. This present work represents an application of expert system in software development for job seekers. From the simulation result and discussion, it is clearly concluded that the design expert system using JAVA is very user friendly, robust, less computational cost based system and easily useful for the consultant (Job seekers) and as well as job provider companies.

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