Mas Based Framework for Recruitment of Fresher’s By CMM Level Company

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ABSTRACT— Every company has to hire freshers for its business process the hiring process involves time and cost of company this costing increase when in a particular drive company does not get appropriate candidates for hiring. The problem is every time company’s HR visits a college they only have a list of eligible candidates based on percentage and backlogs. This list gives an overview of the college it is quite possible the eligible students are not appropriate to be hired for working in the company. The proposed work is solution to the problem by using a framework of multiagent system, this framework consists of various agents which have their own specific task. However, a single agent cannot perform all the complex activities so we are using distributed problem solving approach and use various agents to perform different activities of the framework. Each agent has a fixed task and activity. In addition, agents involved in a multiagent system have the capability to interact, communicate, collaborate and share knowledge. With these properties, our agents solve the complex task of the problem. In proposed system company request for hiring freshers also gives its parameters. Proposed system involves various agents to select region, state and college based on parameters of the request of company these agents work according to their task and provide a list of appropriate candidates.

Keywords— Agents, Multi-Agent System (MAS), Placement Framework, RA, SA, IA, PA

I. INTRODUCTION

In American Heritage Directory the agent is defined as a system that acts or has capability to act or represent another. In simple way agent can be defined as a software or hardware entity that is sited in some environment and is able to eccentrically respond to changes in the environment [1, 2].

Wooldridge and Jennings [3] identified three diverse modules of agents:

- Agents that execute undemanding tasks based on pre-specified rules and assumptions,
- Agents that volunteer information or services to a user whenever it is deemed appropriate, without being explicitly asked to do so.
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Agent will supervise its environment either through sensors in order to have percept from environment or by accessing data from different sources. Figure 1 simply shows how agents interact with its environment and take percept from it and act according to it.

Intelligent Agent can be viewed as an extension of simple agent with following additional properties:

- Reactivity: it is an important property of intelligent agent in which agent will able to react or say it will response to changes in its environment in time to time, and it will also takes some action based on the changes and the function it is designed to achieve.

Figure 1: Basic Architecture of Agent Interaction
prevailing conditions that an agent system perceived from environment.

Social ability: we know that agents have power to collaborate, coordinate and communicate with each other. The communication property comes from social ability. This property is not only for exchanging data or say information’s between agents but it also has negotiation and complex interactive problem solving. Social ability connotes more than the simple transient of data between different software and hardware articles. It will have the ability to negotiate and interact in a supportive manner. That ability to negotiate and collaborate is created by an agent communication language (ACL), which allows agents to communicate rather than simply pass or exchange data. Therefore, this provides a basis for humanizing computerization within various applications of power engineering.

Agent System can be defined as collection of various dislodge agents that are software components who communicate with each other in order to coordinate their activities in order to solve a complex problem which cannot be resolved by any single agent. Thus agent system can be viewed as a network of agents who co-ordinate with each other to solve complex problem, which cannot be solved by any single agent, without having any global monitoring system. A multi-agent system is a system encompasses two or more intelligent agents [4].

It is imperative to know that there is no overall system objective or goal; instead of this each individual agent has its own objective which is either full independent from other or may partially dependent. In case of partially dependency agent communicate with other agent Depending on the definition of agent revealed above, agents in a multi-agent system may or may not have the ability to communicate with each other directly. However, Wooldridge’ [1] has defined intelligent agents as that they must have social ability and therefore must be capable of communication with each other. Multi-Agent System has been used in various fields of engineering and other disciplinary like conditional monitoring, diagnosis, production planning, network monitoring, intelligent tutoring, education planning, production management etc.

II. EXISTING SYSTEM
Each time when a company had to conduct its placement drive it has certain requirement in field of interest but the only thing specified is a criteria of percentage and backlogs, this gives only eligible candidate list provided by the college placement officer. This contains a list of inappropriate candidates that though are eligible according to criteria but are not suited to work in the company. This is a system where if we observe then problem is not limited to inappropriate candidate involved in hiring process but if these inappropriate candidates get hired then chances is their underperformance it will eventually result in their termination, which will increase company’s attrition rate. However the profile of agent can be created using the guide lines of FIPA[6] and various tools which can be used to develop the profile of intelligent agent like JADE[5][7][9]. Protégée is also an open source tool to create ontology and profile of agent for any specific domain.

III. MAS BASED PROPOSED SOLUTION
Different software agents, each of them having specific task and responsibility will constitute the proposed system. The agents will use property of communication, collaboration and interaction with each other in the framework[10][11][12]. A Region Agent (RA) will be there in the framework, which will validate and process the company’s request and exercise direct interaction with the company and, will forward it to State Agent (SA). The RA will now coordinate with and according to the request and will select appropriate state to conduct its placement drive. The SA in coordination with the RA will select a state where the placement drive can take place and co-ordinates with College Agent (CA) that selects the college in that state based of some cognitive parameter. This parameter includes placement ratio, backlog of students, ranking of college, average percentage of students in the college, aggregations of college, faculty grading etc. A Placement Agent (PA) is also there in each college, which provides data of students of college like percentage, backlogs, branch as per criteria of company. The solution to the complex problems is sorted out here by using distributed problem solving approach where a complex problem is divided into lesser complex problems and then the result integration is done. The RA plays the role of a negotiating agent, which finally decides which college is suitable for the placement drive of the company based on predefined parameters.
Figure 2: Hierarchical Diagram for Placement System
IV. IMPLEMENTATION OF THE SYSTEM

Various software agents communicating, collaborating and sharing information among themselves will constitute the system [13][14][15][16]. [15][16] Shows ontological description of medical domain and MAS based approach to provide semantic web service for medical healthcare planning domain. A proper arrangement of agents and using properties of agents like coordination, collaboration and communication to solve a complex problem becomes recent trend in semantic web. A proper arrangement of agents and the method of interaction with which the information will be passed on, will be required for this. Every agent has to perform a specific task. Hence, two types of responsibilities are given to agents:

1. Execute their specific task.
2. Share the Information with other agents.

![Agent Interaction Diagram](image)

V. CONCLUSION

This paper utilizes the software agent’s capabilities to facilitate the process of placement of fresher’s by a company in an institute. This will provide whether a college is relevant for conducting recruitment drive or not. Also there will be reduction in the cost of recruitment and appropriate candidate will be hired which in turn will cut down the attrition rate of the company. In future, we focus on utilRAtion of this framework in admission process as well competitive examination’s eligibility selection process.
REFERENCES


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