Use Case and Activity Diagrams for ABS Information Systems

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Introduction

The pragmatic process of development of complex automated and ideal system solutions for problems in companies, enterprises, and organizations is usually extensive and involves multiple levels of system development activities in order to successfully create such effective systems. The apparent problems or cases have to be broken down into finer descriptive and abstract components which represent granulated activities and requirements of the developed system. Moreover, by theoretically describing and breaking down such problems, it makes it easy to practically keep track, create, and describe how the system was achieved (Bastos, Ricardo Melo, and Duncan Dubugras A. Ruiz 1, Sarshar, K, & Loos, P, 2). Such description of defining or detailing the process of system can be modeled in a graphical representation. The most common models to describe system processes use case diagrams and activity diagrams (Touseef, M, Butt, N.A., Hussain, A, & Nadeem, A, 3). This paper applies the case of Advanced Business Systems (ABS) – a consulting and staffing company which provides staffing and consultation services – to present the use of *use case* and *activity diagrams* in representation flow of an information system.
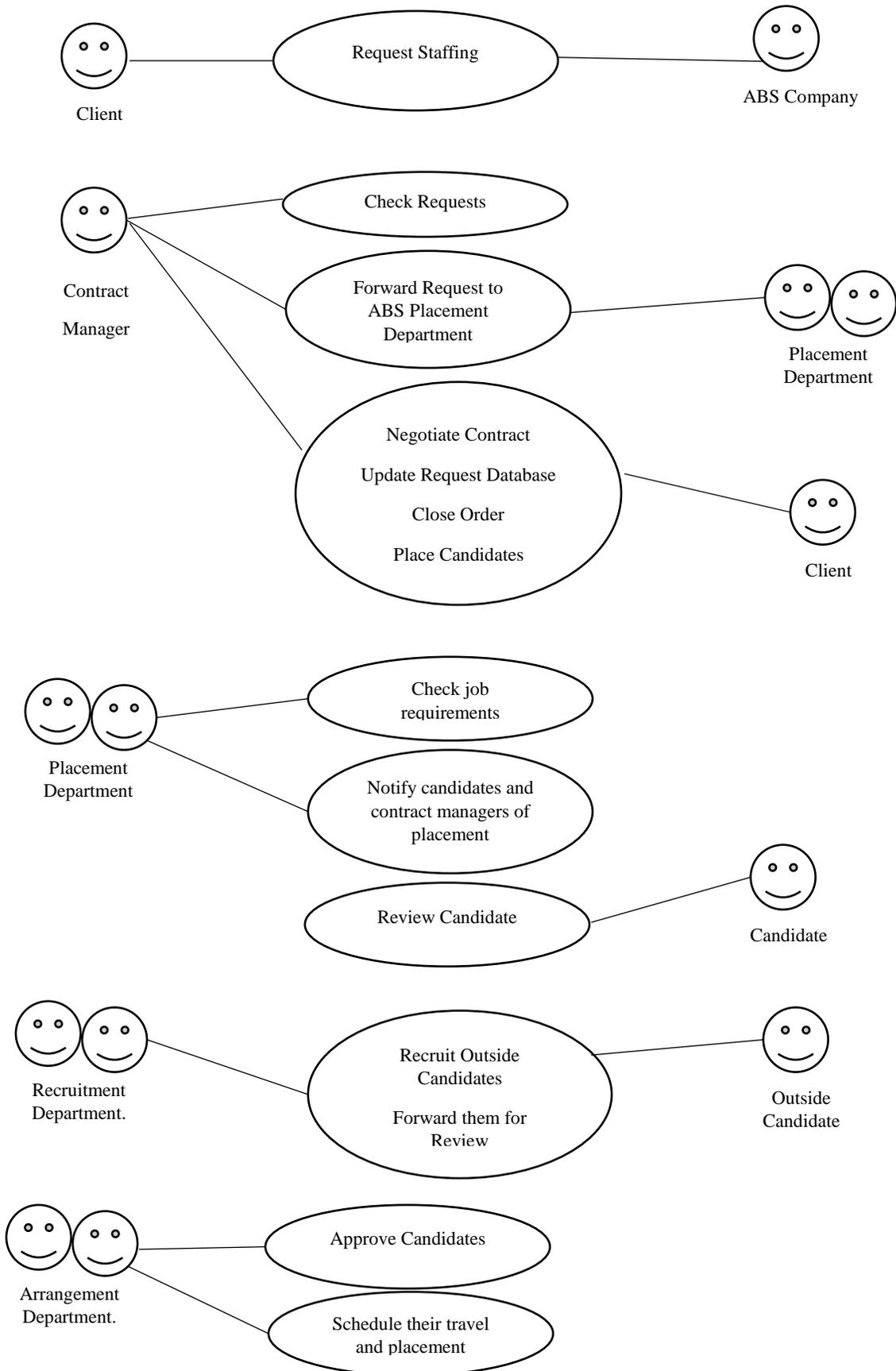
Description of the Use Case Diagram by Actors

The new system designated for ABS Company involves numerous actors. They interact at different levels of the system in order to achieve the company's principle goal; automation of the process of handling staffing requests. To begin from a rudimentary level, the system allows ABS clients to make staffing requests to the company once they (clients) realize that they require more staff. Here, the first actor identified is the client. The next actor is the respective contract manager who reviews the staff requests from the clients and confirms that the requests are valid. In the process of reviewing staff requests from ABS clients, the system will read the requirements of the requests and automatically match them with the prevailing contract to determine if ABS should accept the request and staff the client or renegotiate the terms of the contract. For a successful staffing process the individual request will be stored in a database and thereafter the system will begin the process of recruiting staff. This is overseen by the contract manager. Another actor identified in the system is the ABS placement team. This team is

responsible for checking the requirements of the respective job positions as presented by the client. By using complex and effective algorithms, the system will compare such requirements against the qualifications and proficiency of internal candidates suitable for the job. The process of recruitment and placement involves several actors. In other instances, actors perform their duties within other actors in the system; the following are the most key actors within the system including those mentioned above:

1. ABS Clients

2. Contract Managers

3. Placement Department

4. Placement Specialist

5. Candidates designed to fill respective jobs at ABS clients

6. Recruitment Specialists

7. Contract Department

8. Arrangement Department

The following is the use case diagram that shows the events and responsibilities of actors within the new system.

Client — Request Staffing — ABS Company

Contract Manager
- Check Requests
- Forward Request to ABS Placement Department — Placement Department
- Negotiate Contract
  Update Request Database
  Close Order
  Place Candidates — Client

Placement Department
- Check job requirements
- Notify candidates and contract managers of placement
- Review Candidate — Candidate

Recruitment Department. — Recruit Outside Candidates / Forward them for Review — Outside Candidate

Arrangement Department.
- Approve Candidates
- Schedule their travel and placement

Activity Diagram of the ABS System by Roles

The ABS system is designed by an expansive information system made up of a collection of activities. The vastness of the information systems is due to multiple functionality the system is designated to achieve. The functionality of the system is derived from the requirements of the needs of the ABS Company. To develop a graphical model which represents the activities within the whole information system that requires identification and definition of such activities. The model has to prioritize on representing the most key functions achieved by the system. In the case of ABS Company, the system's prime role is to automate the process of handling staffing requests made by the company's clients. This task cannot be identified as a single process. It should be broken into the respective processes that construct it. As recognized in the course of defining and analyzing this main task, there are various actors involved in the process of handling the staffing requests. The following are the key activities in handling staffing requests listed in chronological order.

Activity 1: A client makes a staffing request through the company's web site or writes an email to ABS. In this case, the ABS information system makes use of Application Program Interfaces (APIs) to integrate with the client's in-house email applications or other major email services such as Google Mail, Yahoo Main, and Microsoft Outlook.
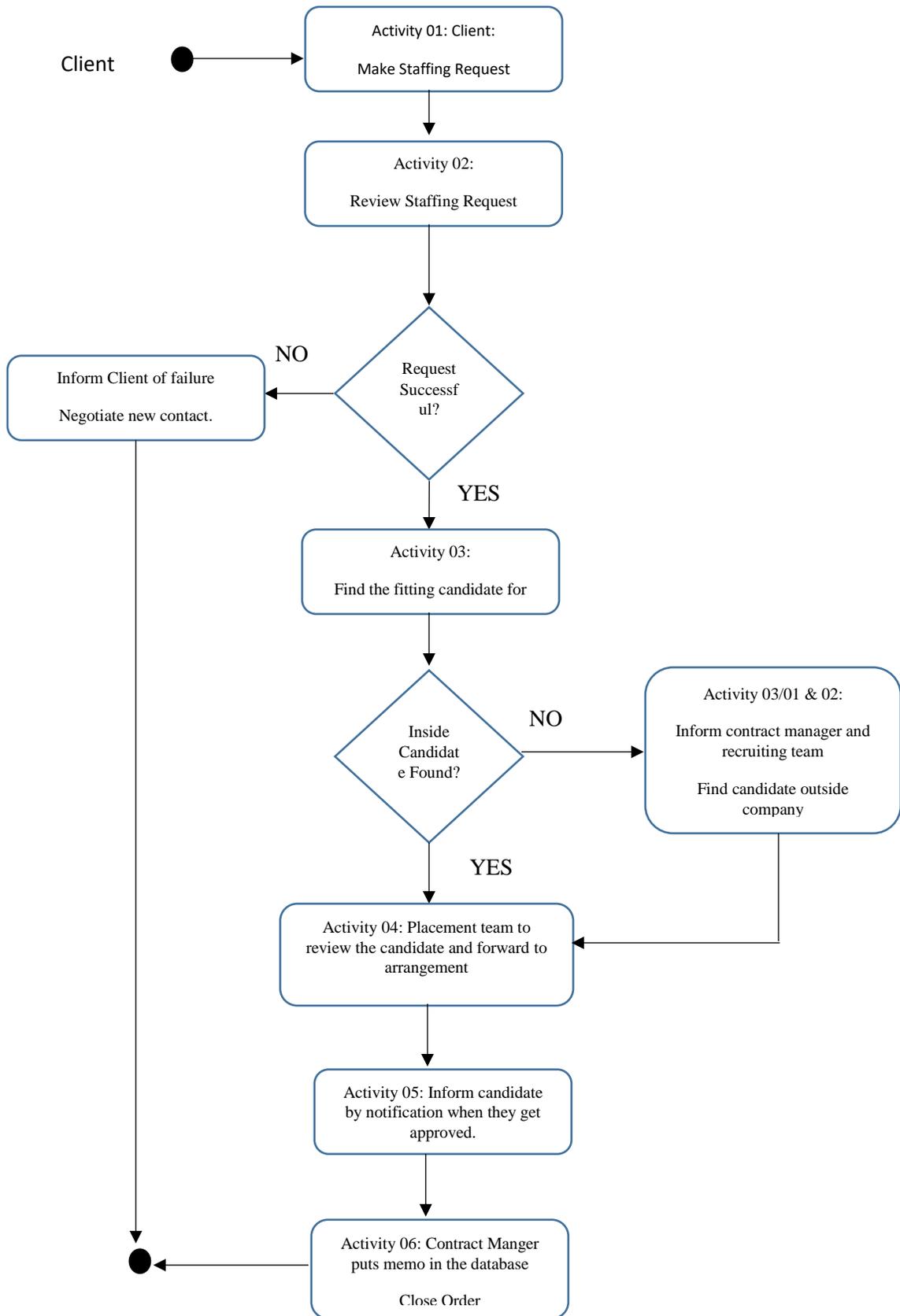
Activity 2: The requests are reviewed by the contract managers. The system will automate the process by applying intelligent mechanism to determine the integrity of the staffing requests in contrast to the existing contract. If the request fails to qualify for approval, the contract manager sends it back to the client with an explanation describing why it was declined. All the requests whether successful or unsuccessful are stored in the company's database for future reference.

Activity 3: Successful requests are sent to the company's placement department. This part of the system is supplemented by the human placement experts to determine the most suitable candidates or the

respective job positions provided by the clients. The fit candidate is informed by email, phone, or the

company's in-house messaging applications. If there are no qualified candidates within ABS then:

- Activity 03/01: A placement specialist through the info-system informs the contract manager to

    allow the recruitment team to source the candidate outside the company.

- Activity 03/02: The found candidate is sent to the placement team for approval.

- Activity 04: The fitting candidate is forwarded to the arrangement department to be informed and

    to confirm their placement details such as starting date, location of the client they will work for,

    compensation, and travel arrangements.

- Activity 05: ABS client is notified of the placement of the new staff and their respective billing

    schedule. If the client approves the arrangement, the overall staffing request is acknowledged by

    the company and the respective client through the contract manager.

- Activity 06: The Contract Manager releases a memo in the company, sets the contract as

    complete, and closes it.

    Below is an activity diagram that shows a summary of the mentioned activities and its actors.

Client ●──────▶ **Activity 01: Client:**

Make Staffing Request

│
▼

Activity 02:

Review Staffing Request

│
▼

NO ◀──── ◇ **Request Successful?**

Inform Client of failure

Negotiate new contact.

│ **YES**
▼

Activity 03:

Find the fitting candidate for

│
▼

◇ **Inside Candidate Found?** ──**NO**──▶ **Activity 03/01 & 02:**

Inform contract manager and recruiting team

Find candidate outside company

│ **YES**
▼

Activity 04: Placement team to review the candidate and forward to arrangement

│
▼

Activity 05: Inform candidate by notification when they get approved.

│
▼

Activity 06: Contract Manger puts memo in the database

Close Order

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References

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3. Touseef, M., Butt, N. A., Hussain, A., & Nadeem, A. (2015). Testing from UML design using activity diagram: a comparison of techniques. *International Journal of Computer Applications*, *975*, 8887.