

CLASS BASED MODELING

General Classifications

To identify the potential classes we have first selected the nouns from the solution space of the story. These were then characterized in seven general classifications. The seven general characteristics are as follows:

1. External entities
2. Things
3. Events
4. Roles
5. Organizational units
6. Places
7. Structures

Following are the specifications of the nouns according to the general classifications:

General Classifications of Nouns

	Name	GC
1	DMLC Forward Diary Maintaining System	
2	Automated system	
3	Document	2
4	Employee	4
5	State	
6	Requester	
7	Current status	
8	Request	2
9	Access	
10	Task	2
11	Statistics	2
12	Fields	
13	User name	2
14	Password	2
15	Name	2
16	Designation	2
17	Department	2
18	Contact Number	2
19	User interface	
20	Technical admin	4
21	Registration	3
22	Account	2
23	User	4
24	Phone	
25	SMS	2

26	Authentication	3
27	Forgot password option	
28	Letter	2
29	Receiving date	2
30	Department of origin	2
31	Request ID	2
32	Subject of the letter	2
33	Auto generated ID	2
34	Progress	2
35	Received	
36	Work-in-progress	
37	Completed	
38	Director	4
39	Priority	2
40	High	
41	Medium	
42	Low	
43	Subordinate	4
44	Notification	2
45	Comment	2
46	Acknowledgement date	2
47	Acknowledgement time	2
48	Sending date	2
49	Sending time	2
50	Employee hierarchy	
51	Computer operator	4
52	Response document	2

53	Immediate manager	4
54	Flaw	
55	Improvement	
56	Instruction	
57	Correction	
58	Submission	
59	Response document ID	2
60	End date	2
61	Website	
62	List of requests	7
63	Number of days elapsed	2
64	Number of requests from each department	
65	Time taken to complete a request	2
66	Time each employee spends before forwarding a task	2
67	Number of tasks completed by an employee	2
68	Personnel	
69	Front desk	
70	Published Status	2
71	Currently working employee	
72	Dashboard	

Selection Criteria

The potential classes were then selected as classes by six Selection Criteria. A potential class becomes a class when it fulfills all six characteristics.

1. Retained Information
2. Needed Services
3. Multiple Attributes
4. Common attributes
5. Common operations
6. Essential requirements

Selection Criteria of Potential Classes

	Name	SC
1	Document	1,3,4
2	Employee	1, 2, 3, 4, 5
3	Request	1,3,4
4	Task	1,3,4
5	Statistics	2,6
6	Technical admin	1, 2, 3, 4, 5
7	Registration	2,6
8	Account	1, 2, 3, 4, 5
9	User	1, 2, 3, 4, 5
10	Authentication	2,6
11	Letter	1,3,4,5
12	Director	1, 2, 3, 4, 5
13	Subordinate	1, 2, 3, 4, 5
14	Computer operator	1, 2, 3, 4, 5
15	Response document	1, 3, 4, 5
16	Immediate manager	1, 2, 3, 4, 5

Associate Noun and Verb Identification

We now identify the nouns and verbs associated with the potential classes to better find out the attributes and methods of each class.

Associate Noun and Verb Identification

No	Potential Class	Nouns	Verbs
1	Employee	username, password, name, designation, department, contact number, number of tasks completed	changePassword
2	General Employee	Same as employee	acknowledgeTask, trackRequest, seeListOfRequests, viewEmployeeAccessibleStatistics, download, changePassword
3	Technical Admin	Same as employee	createAccount, disableAccount, transferTask, changePassword
4	Computer Operator	Same as employee	changePassword, moveUp, attachResponseDocument, addDocumentId
5	Manager	Same as employee	moveDown, comment, notify
6	Director	Same as employee	setPriority, approveAccount, approveResponseDocument, viewStatistics
7	MiddleManager	Same as employee	moveUp
8	Authentication		matchPassword, updatePassword, login, logout
9	Registration		generatePassword, register, sendSMS
10	Statistics		getNumberOfRequestsOfADepartment, getElapsedTimeForTaskCompletion, getElapsedTimeBeforeEmployeeForwardsTask, getNumberOfTasksCompletedByAnEmployee
11	FrontDesk	Same as employee	viewWorkProgress, recordLetter, sendToDirector

FINALIZING CLASSES

To identify the final classes we need to check if there can be any hierarchies or merges. These identifications are given below:

1. Employee has attributes: username, password, name, designation, department, contact number, number of tasks completed and method: changePassword()
2. GeneralEmployee extends Employee. It has some extra methods. They are: acknowledgeTask(), trackRequest(), seeListOfRequests(), viewEmployeeAccessibleStatistics(), download()
3. TechnicalAdmin extends Employee. It has some extra methods. They are: createAccount(), disableAccount(), transferTask()
4. ComputerOperator Extends General Employee. It has some extra methods. They are: moveUp(), attachResponseDocument(), addDocumentId()
5. Manager extends GeneralEmployee. It has some extra methods. They are: moveDown(), comment(), notify()
6. Director Extends Manager. It has some extra methods. They are: setPriority(), approveAccount(), approveResponseDocument(), viewStatistics()
7. MiddleManager extends Manager. It has a method: moveUp()
8. Authentication has methods: matchPassword(), updatePassword(), login(), logout()
9. Registration has methods: generatePassword(), register(), sendSMS()
10. Statistics has methods: getNumberOfRequestsOfADepartment(), getElapsedTimeForTaskCompletion(), getElapsedTimeBeforeEmployeeForwardsTask(), getNumberOfTasksCompletedByAnEmployee()
11. FrontDesk extends Employee. It has some extra methods. They are: viewWorkProgress(), recordLetter(), sendToDirector()

Class Cards

After identifying our final classes we have generated the following class cards.

1. Authentication

Responsibility	Collaborators
Verifying user	
Updating password	

2. Registration

Responsibility	Collaborators
Sending SMS	
Generating password	
Registering user	

3. Employee

Responsibility	Collaborators
Changing password	

4. General Employee extends Employee

Responsibility	Collaborators
Acknowledging tasks	
Viewing list of requests assigned to him	
Tracking a letter	
Viewing accessible statistics	Statistics

5. TechnicalAdmin extends Employee

Responsibility	Collaborators
Account management	Registration

6. Computer Operator extends Employee

Responsibility	Collaborators
Attaching response document	
Forwarding document	

7. Manager extends GeneralEmployee

Responsibility	Collaborators
Forwarding document	
Commenting	
Getting notified	

8. Director extends Manager

Responsibility	Collaborators
Approving accounts	
Setting letter priority	
Approving response document	
Viewing statistics	Statistics

9. MiddleManager extends Manager

Responsibility	Collaborators
Forwarding document	

10. Statistics

Responsibility	Collaborators
Showing statistics	

11. FrontDesk extends Employee

Responsibility	Collaborators
Viewing work progress	
Receiving a task	

CRC Diagram

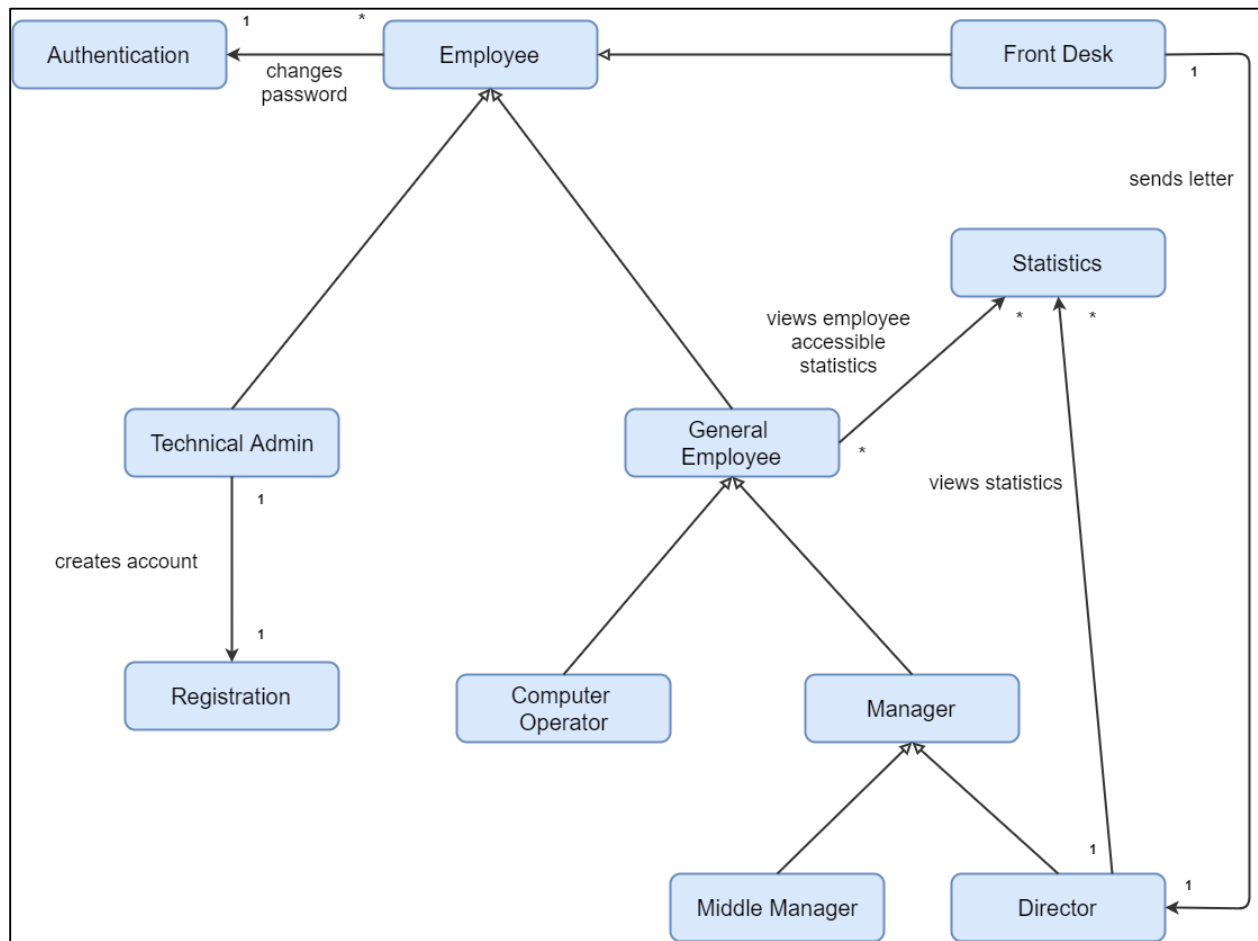


Figure 1: CRC Diagram

UML DIAGRAM

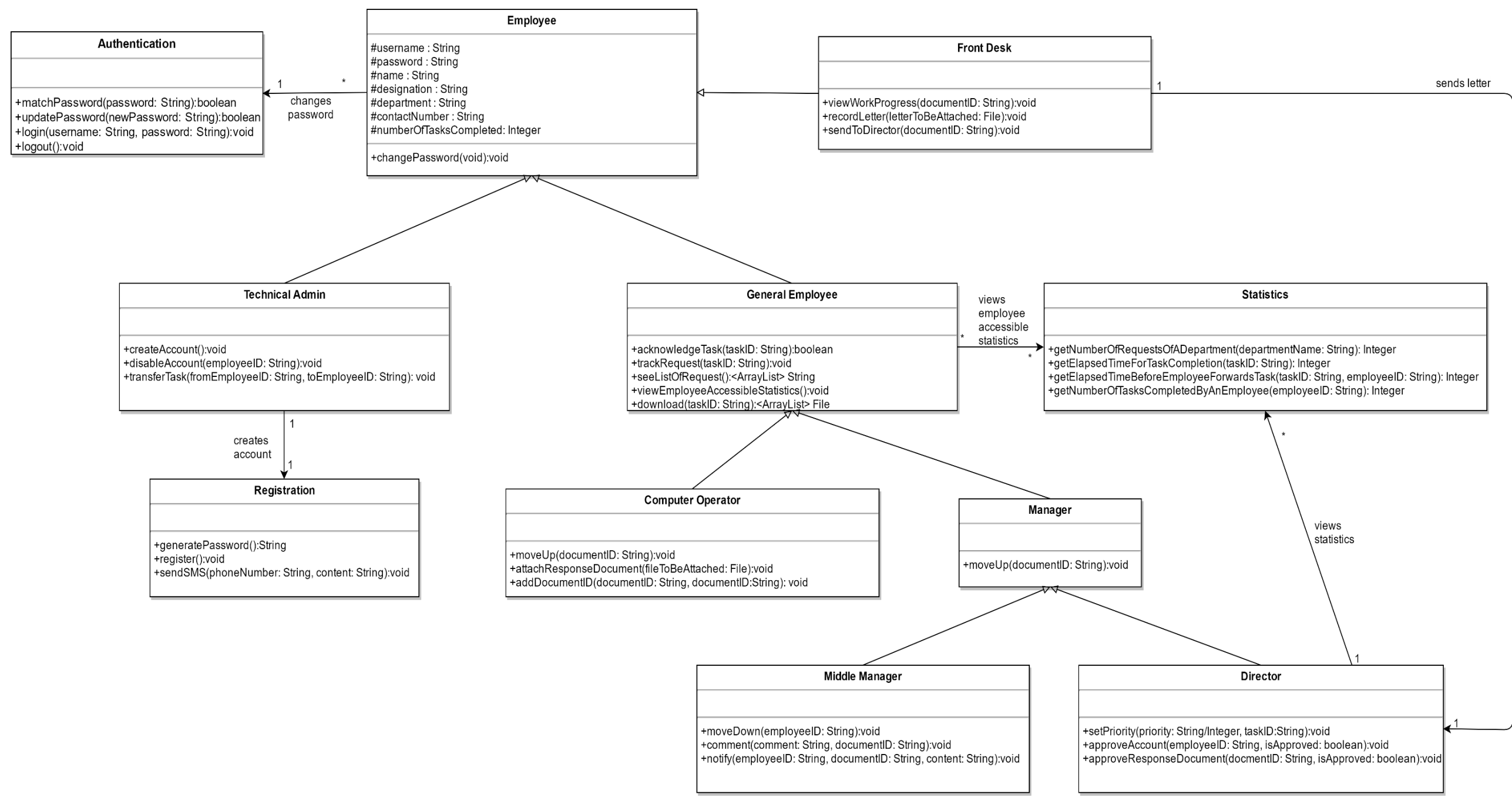


Figure 2: UML diagram