A project report on Object Oriented Analysis & Design of

“Hotel Automation Software”

Project Title : *Hotel Automation Software*

Subject : *OOAD & UML*

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INTRODUCTION

a. **Purpose:** The purpose of using this software is very helpful and useful in many ways through which the visitors can reserve rooms and gets required facility without any complaint.

- It will reduce paper work and labour work also.
- Hotel manager manages and provides facility.
- And automated software keeps data of visitors and maintains room tarrifs and generates bill.

b. Scope: The scope of using this software is useful in many big hotel

- This software helps us to keep the daily records of visitors.
- Hotel will provide services to visitors round the clock.

c. Overview: The overview of this software is as follows:

Here hotel has a certain number of rooms , which have different rates depending upon the type of room. The computer display the average occupancy rate for given month, so that manager revise the room tarrifs . Visitors can reserve rooms in advance or on spot depending upon availabilitl of rooms. Receptionist enters data of visitors and computer allots unique room no. and token no. Hotel catering manager provide catering services to visitors. Finally hotel automation software generates entire bill of visitors.

A Brief Introduction To UML & Rational Rose

The Unified Modeling Language (UML) offers standard semantics and notation for describing object structure and behavior and has emerged as the design medium of choice for developing large-scale distributed object applications. Augmented by the Rational Unified Process, an extensive set of software development guidelines, and the Rational Rose visual modeling tool, the UML greatly facilities the development of quality object-oriented applications that meet both deadlines and requirements.

Visual Modeling with Rational Rose 2000 and UML is a comprehensive introduction and tutorial providing guidance on how to use a tool (Rational Rose 2000), a process (the Rational Unified Process), and a language (the UML) to successfully visualize, specify, document, and construct a software system. The UML provides a very robust notation, which grows from analysis to design. Certain elements of notation (for example: classes, associations, aggregations, inheritance) are introduced during analysis.

"The UML is an attempt to standardize the artifacts of analysis and design: semantic models, syntactic notation, and diagrams." The Rational Unified Process is structured along two dimensions:

. Time - division of the life cycle into phases and iterations.

. Process components - production of a specific set of artifacts with well- defined artifacts.

INTERACTION MODEL

* The ***interaction model*** describes how objects interact to produce useful results. It is holistic view of behavior across many objects. The interaction model is the third leg of the modeling tripod and describes interactions within a system.

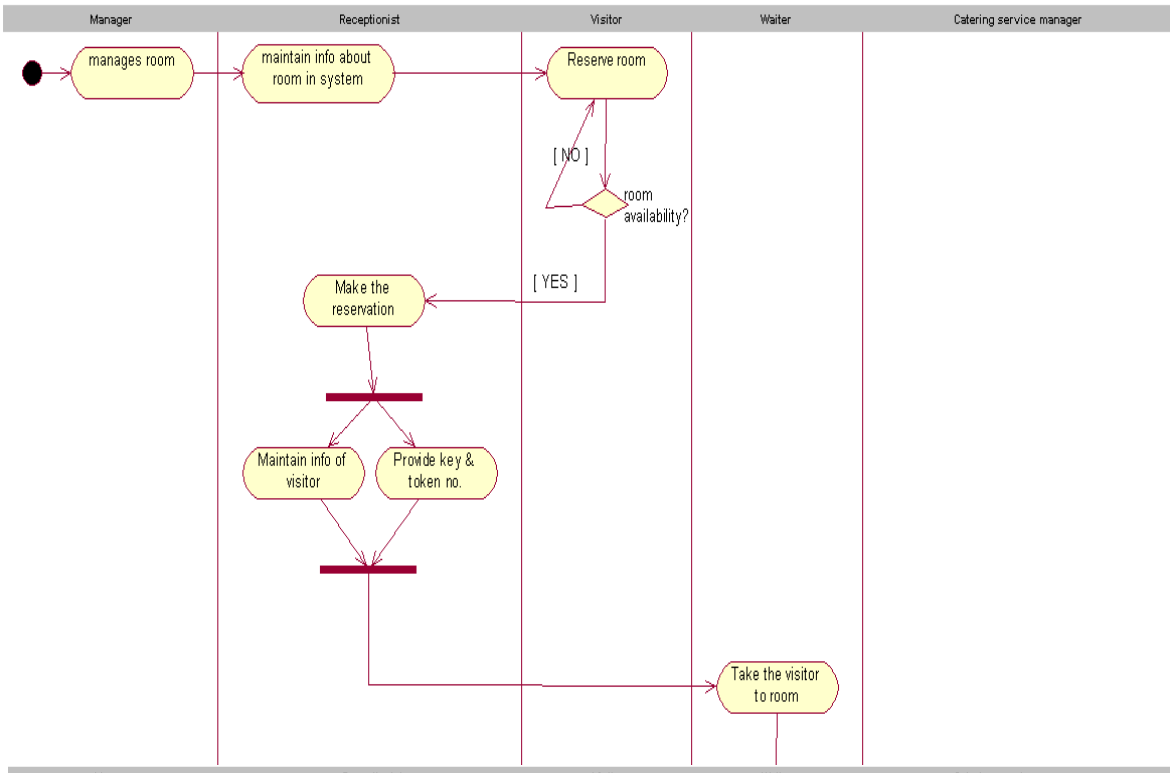
1. Activity Diagram(Description):

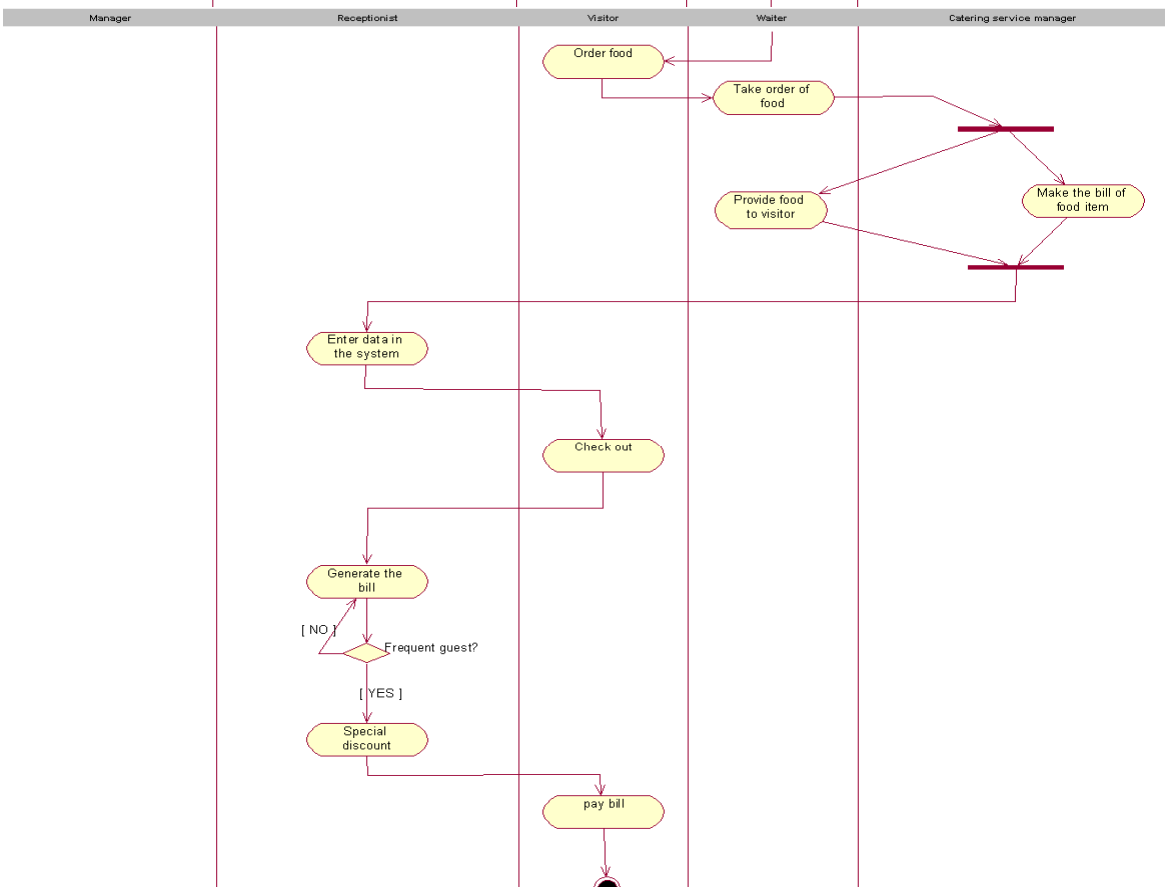
"The function of activity diagram is to show the sequence of steps that make up a complex process."

Initially manager manages the room, after that receptionist maintains information about rooms in the system. Visitor reserves the room, if vacancy is their then room will be provided to the visitor, if not then computer will display apology message. Receptionist then makes the reservation and allots token no. and keys to the visitors. Waiter takes the visitor to the room.

Visitor orders for the food. And order will be taken by the waiter andd give it to catering manager. Catering manager provides quantity and quality of food ordered by the visitor.

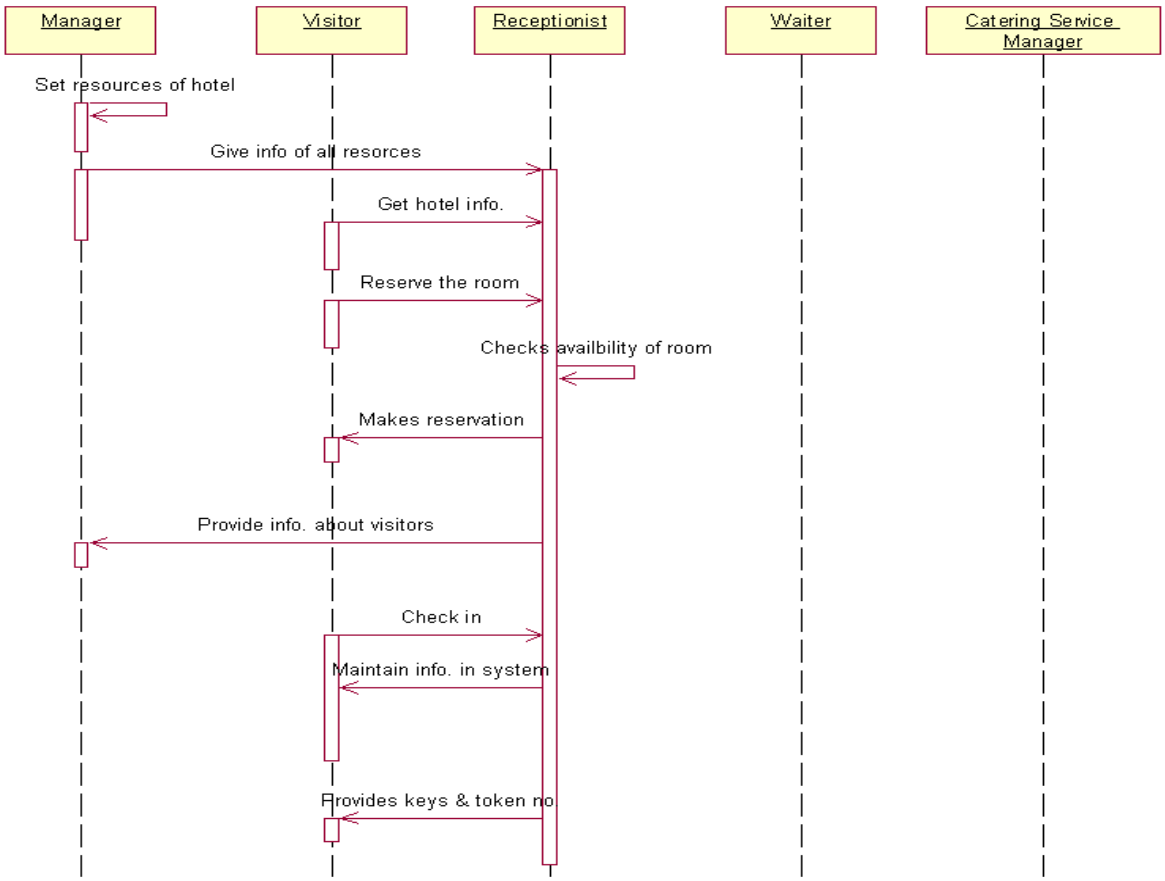
When visitor want to check out, the receptionist generates bill for the visitor, and special discounts are provide according to advanced booking. And finally visitor gives the payment.

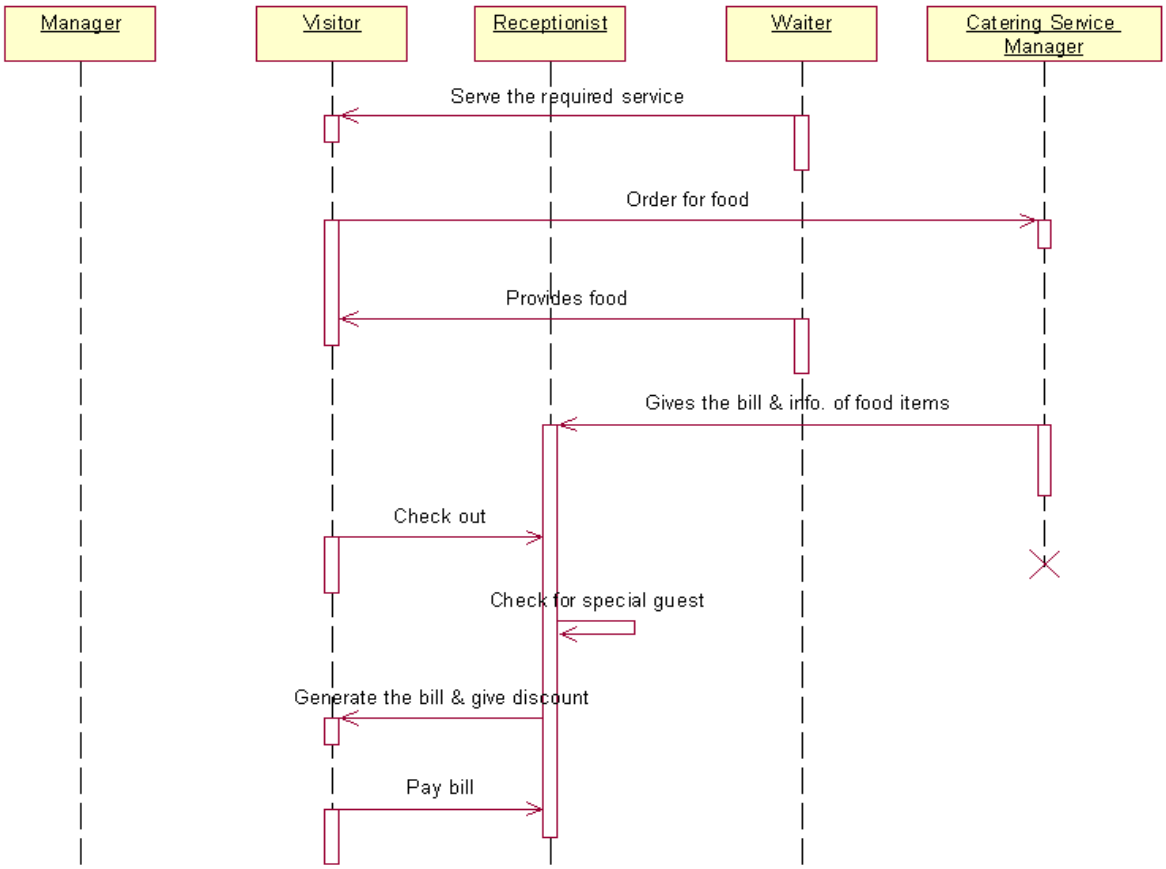

Manager
Receptionist
Visitor
Waiter
Catering service manager
manages room
maintain info about room in system
Reserve room
[NO]
room availability?
[YES]
Make the reservation
Maintain info of visitor
Provide key & token no.
Take the visitor to room


Manager
Receptionist
Visitor
Waiter
Catering service manager
Order food
Take order of food
Provide food to visitor
Make the bill of food item
Enter data in the system
Check out
Generate the bill
[NO]
Frequent guest?
[YES]
Special discount
pay bill

2. Sequence Diagram (Description):

It is a sequence of events that occurs during one particular execution of system…


Manager
Visitor
Receptionist
Waiter
Catering Service Manager
Set resources of hotel
Give info of all resorces
Get hotel info.
Reserve the room
Checks availbility of room
Makes reservation
Provide info. about visitors
Check in
Maintain info. in system
Provides keys & token no


Manager
Visitor
Receptionist
Waiter
Catering Service Manager
Serve the required service
Order for food
Provides food
Gives the bill & info. of food items
Check out
Check for special guest
Generate the bill & give discount
Pay bill

3.Use case Diagram (Description):

It is a system which involves a set of use cases and set of actors. Each of use case provides a slice of functionality a system provides.

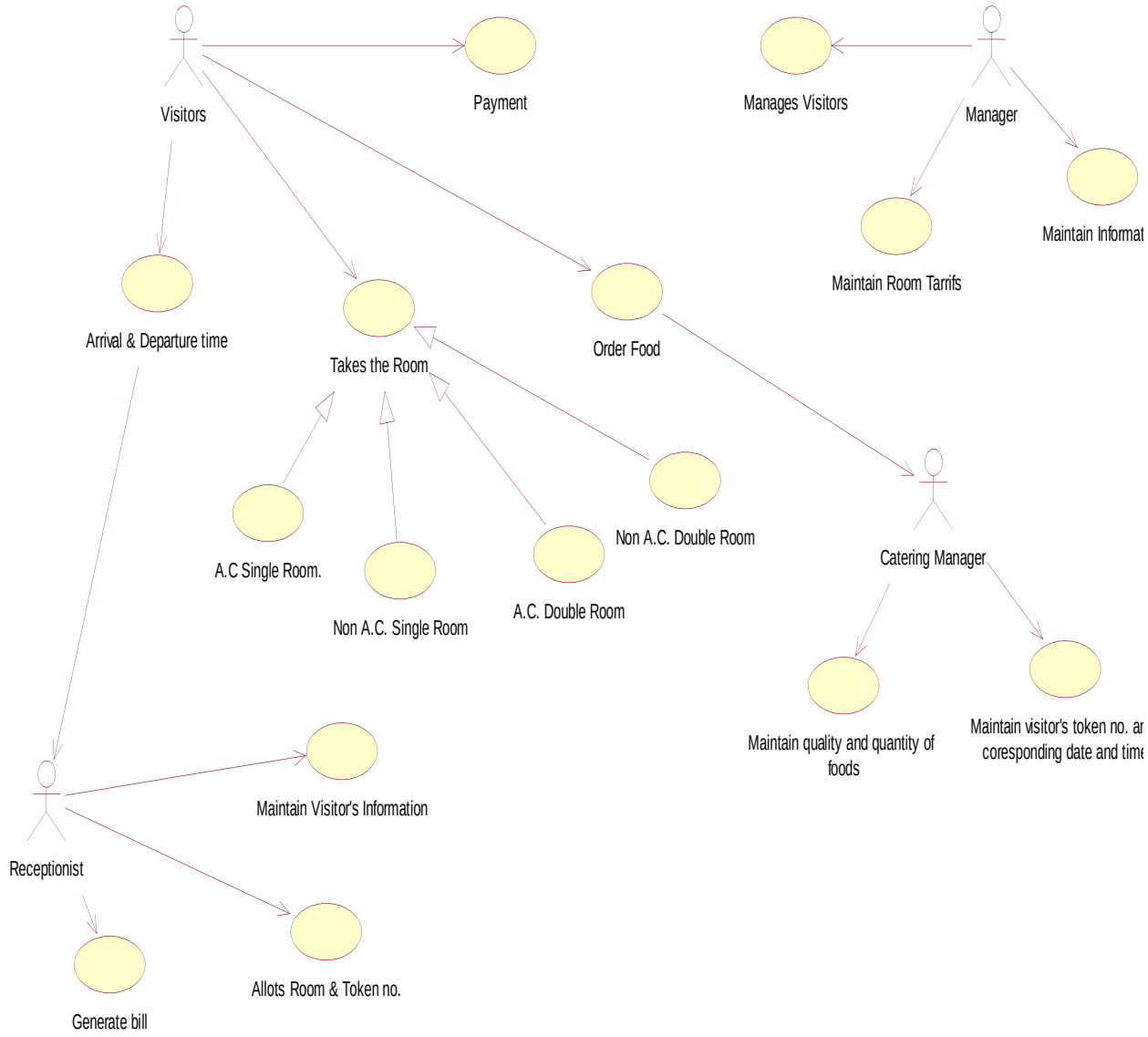
In this system we have 4 actors.

1. **Visitor:** Here visitor reserves the room, orders food and gives payment. Here we show **generalization** in room by room types i.e. A.C,Non A.C.

2. **Receptionist:** Here receptionist allots room no. and unique token no. to the visitors. Receptionist maintains information about arrival time and departure time of visitors. He also generates bills.

3. **Manager:** Here manager manages visitors i.e. provide services, manages room tarrifs and maintains information about rooms.

4. **Catering Manager:** Catering manager manages type of food cosume by the visitors. He also maintains quantity and quality of food items.


Visitors
Payment
Manages Visitors
Manager
Maintain Informat
Maintain Room Tarrifs
Arrival & Departure time
Takes the Room
Order Food
A.C Single Room.
Non A.C. Single Room
A.C. Double Room
Non A.C. Double Room
Catering Manager
Maintain quality and quantity of foods
Maintain visitor's token no. ar coresponding date and time
Receptionist
Maintain Visitor's Information
Generate bill
Allots Room & Token no.

CLASS MODEL

* The ***class model*** describes the static structure of objects in a system-their identity, their relationships to other objects, their attributes, and their operations.

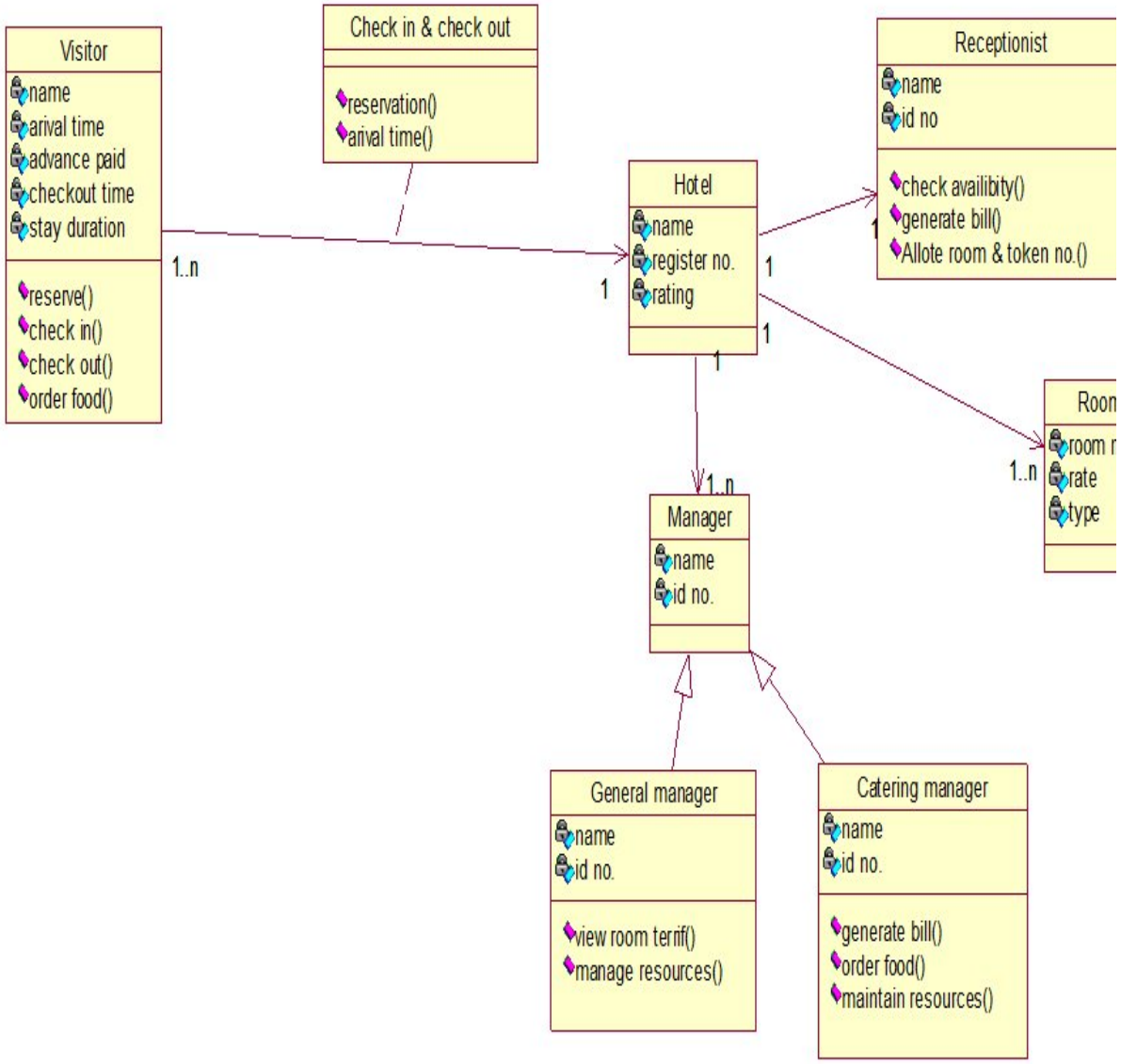
Class Diagram (Description):

In this system visitor, receptionist, hotel and manager are the major classes. In the visitor class there are 5 attributes and its value is name, arrival time, advanced paid, checkout time and stay duration. Name is the identity of the visitor. The operation of visitor are reserves the room, checks in, checks out and order the food.

2nd class is the receptionist. Receptionist have 2 attributes. One is the name and id no. of receptionist. Here receptionist performs 3 operation, they are allots room no. and unique token no. to visitor, checks the availability of the room in the system and generate entire bill for the visitor. 3rd class is the hotel. Hotel have 3 attributes, they are hotel name , hotel register no. and rating of the hotel. 4th class is the manager, attributes of manager are id no. and name.

Here one end association name check in & check out between the class visitor and receptionist. Here class manager shows a generalization by general manager and catering manager. Visitor to hotel is many to one multiplicities.

And from hotel to receptionist there is one to one multiplicity, because one hotel have only one receptionist.



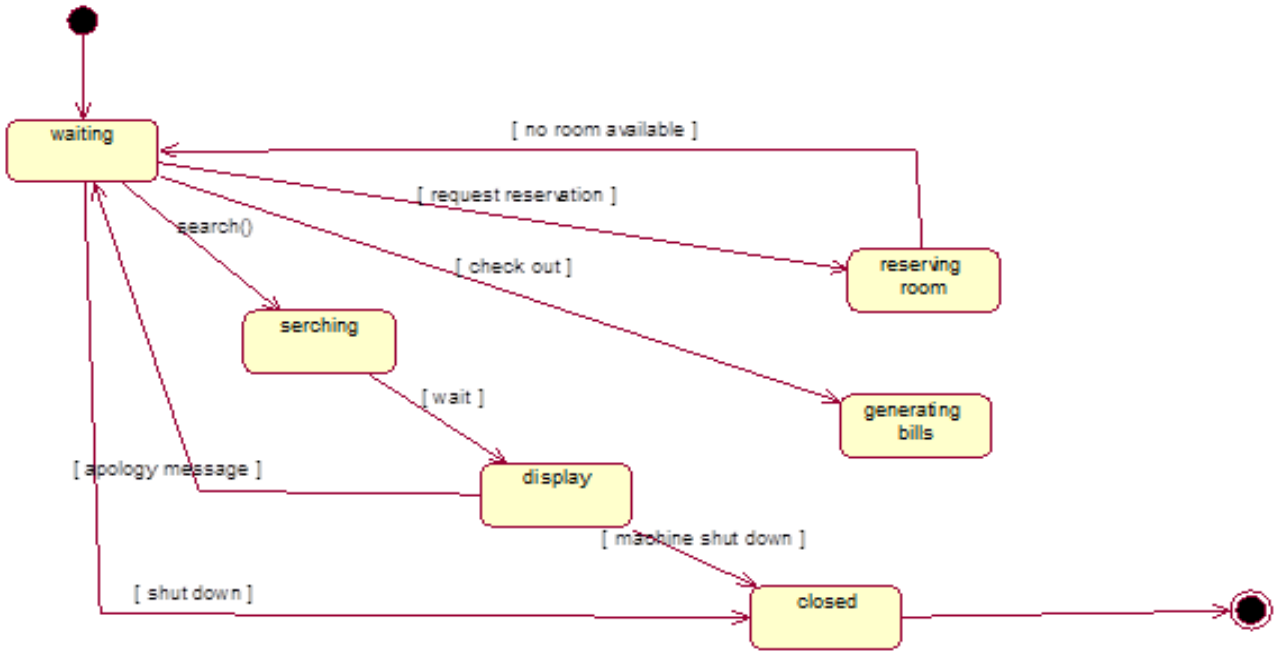
STATE MODEL

* A ***State Model*** describes those aspects of an object concerned with time-events that mark changes and states define the context for events.

1. State-Chart Diagram (Description):

A state diagrams is a graph whose nodes are states and whose directed arcs are transitions between states. It specifies the sequences caused by event sequences.

For the Hotel Automation System the state diagram is shown



CONCLUSION AND FUTURE WORK

PROCESS OVERVIEW

- ***System Conception*** deals with the genesis of an application. The purpose of system conception is to defer details and understand the big picture- what need does the proposed system meet, can it be developed at a reasonable cost and will be demand for the result.
  The high questions arise as follows to elaborate the initial concept:

a. Who is the application for?

This software is mainly for any hotel which wants to go for an automation from manual labour.

If a organization has a appropriate finance and customer basethe software will be justified for them.

b. What problems will it solve?

Instead of doing work manually, most of work can be done by use of software which improves the efficiency and accountability.

It will help the staff to work more efficiently and in a more effective way. Also it will be more better from customer prospect so as to have a more customer satisfaction.

c. Where will it be used?

The software can be used in any small to big hotel where it can enhance the working of staff of that organization.

Most visitors expect the hotel to have an automation system so as to be simple, friendly for them.

d. When is it needed?

It is needed when a hotel is ready with financial as well as technical feasibility.

The hotel if wants to go for a new age automation system rather than relying on the old age manual work this software can be of great use.

e. Why is it needed?

The new automation software will help in the cost measuring, tangible benefits, intangible benefits.

Automation will result in better accountability and in proper managing of hotel by the administration.

f. How will it work?

The software will be using a 3-tier architecture to separate user interface from programming logic and programming logic from database.

CONCLUSION AND FUTURE WORK

Conclusion :

The project on “Hotel Automation System” will help in having a better control on organizing daily basis work of a hotel. It will result in more improved performance from the employees and more satisfaction from customer which ultimately help in gaining a reputation for the hotel and more profitable business.

Future Work:

More features can be added to this system so as enhance the capability of software. Also by networking a central system can also be maintained so as to control a number of group of hotels.