Customer Churn Prediction Using Artificial Neural Network And Machine Learning

GUIDE

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INTRODUCTION

Most common issue that company faces is to retain their exsisting customers like gaming,banking,telecome who are willing to leave the system is a challenging task

Using customers behaviour ,usecase as their attributes we are going to predict

we will be performing EDA that gets some data insights

using that insights we try to build our model and try to deploy it

ABSTRACT

customer churn in Telecom Retention

CUSTOMER CHURN ANALYSIS AND PREDICTION IN THE TELECOM SECTOR IS AN ISSUE NOWADAYS BECAUSE IT'S VERY IMPORTANT FOR TELECOMMUNICATION INDUSTRIES TO ANALYZE BEHAVIORS OF VARIOUS CUSTOMERS TO PREDICT WHICH CUSTOMERS ARE ABOUT TO LEAVE THE SUBSCRIPTION FROM TELECOM COMPANIES. SO DATA MINING TECHNIQUES AND ALGORITHMS PLAYS AN IMPORTANT ROLE FOR COMPANIES IN TODAY'S COMMERCIAL CONDITIONS BECAUSE GAINING A NEW CUSTOMER'S COST IS MORE THAN RETAINING THE EXISTING ONES. ONE OF THE MAIN AIM OF CUSTOMER CHURN PREDICTION IS TO HELP IN ESTABLISHING STRATE-GIES FOR CUSTOMER RETENTION. ALONG WITH GROWING COMPETITION IN MARKETS FOR PROVIDING SERVICES, THE RISK OF CUSTOMER CHURN ALSO INCREASES EXPONENTIALLY. THEREFORE, ESTABLISH-ING STRATEGIES TO KEEP TRACK OF LOYAL CUSTOMERS (NON-CHURNERS) HAS BECOME A NECESSITY.

STEPS

1. **DATA COLLECTING**
2. **EXPLORATORY DATA ANALYSIS AND DATA CLEANING**
3. **DATA VISUALIZATION**
4. **FEATURE IMPORTANCE**
5. **FEATURE ENGINEERING**
6. **SETTING A BASELINE**
7. **SPLITTING THE DATA IN TRAINING AND TESTING SETS**
8. **ASSESSING MULTIPLE ALGORITHMS**
9. **ALGORITHM SELECTED: GRADIENT BOOSTING**
10. **HYPERPARAMETER TUNING**
11. **PERFORMANCE OF THE MODEL**
12. **DRAWING CONCLUSIONS — SUMMARY**
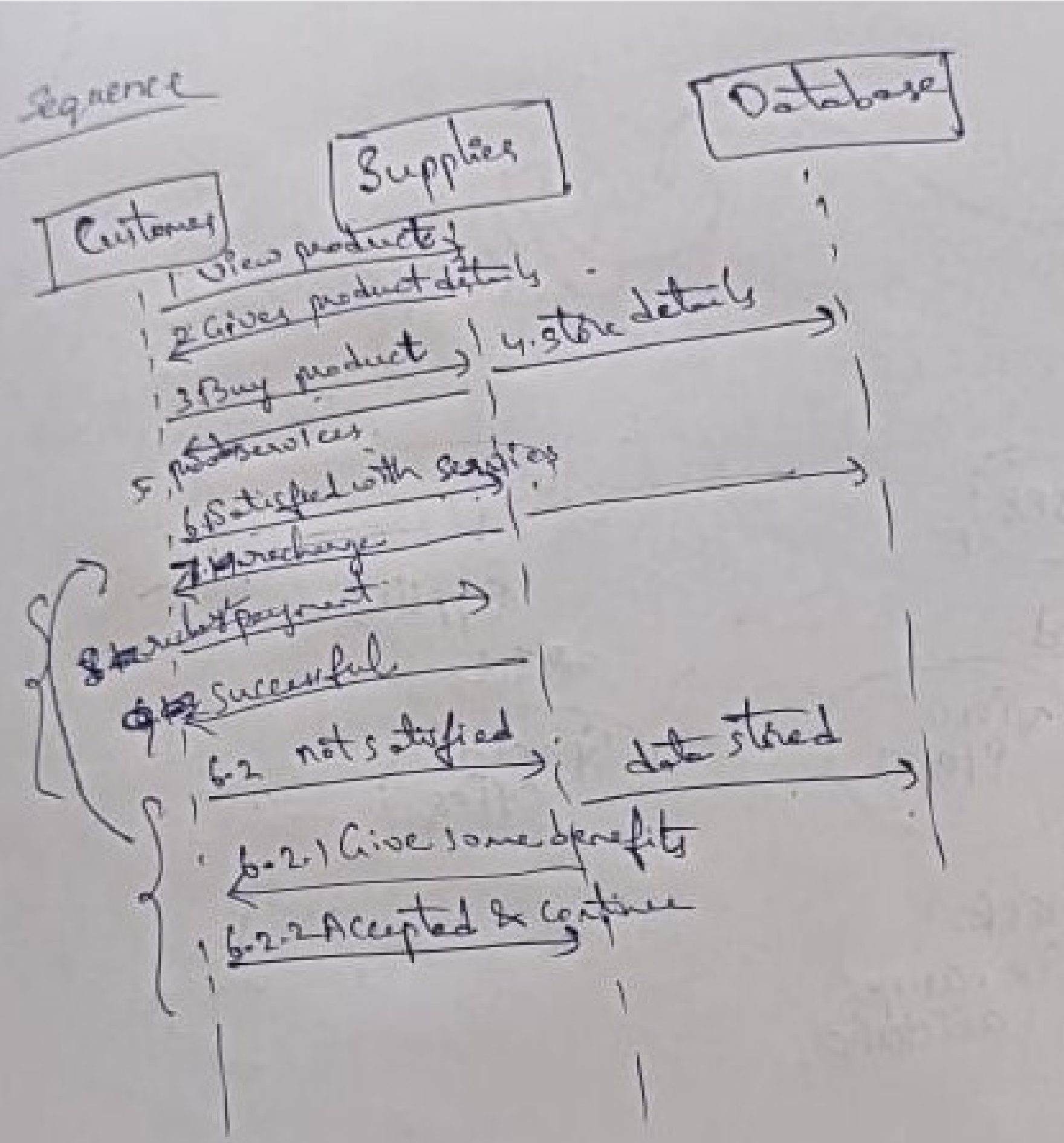
PROCESS BEHIND IT

1.INITIALLY COLLECTING DATA

HOW TO COLLECT DATA

- BASED ON ACQUISITION DATA
- BASED ON USAGE AND RELOAD
- BASED ON SURVEY RELATED DATA

2.HOW TO MANAGE CHURN
EDA

- CAPTURE & ANALYZE
- REPORT &PREDICT
- ENGAGE & ACT

Sequence


```
                          ┌──────────┐        ┌──────────┐
              ┌─────────┐ │ Supplier │        │ Database │
              │Customer │ └──────────┘        └──────────┘
              └─────────┘
                  1. View products
                  2. Gives product details
                  3. Buy product      4. store details
                  5. post services
                     6. Satisfied with seg/reg
                     7. recharge
              8. checkout payment
                 9. Successful
                     6.2 not satisfied      data stored
                       6.2.1 Give some benefits
                       6.2.2 Accepted & continue
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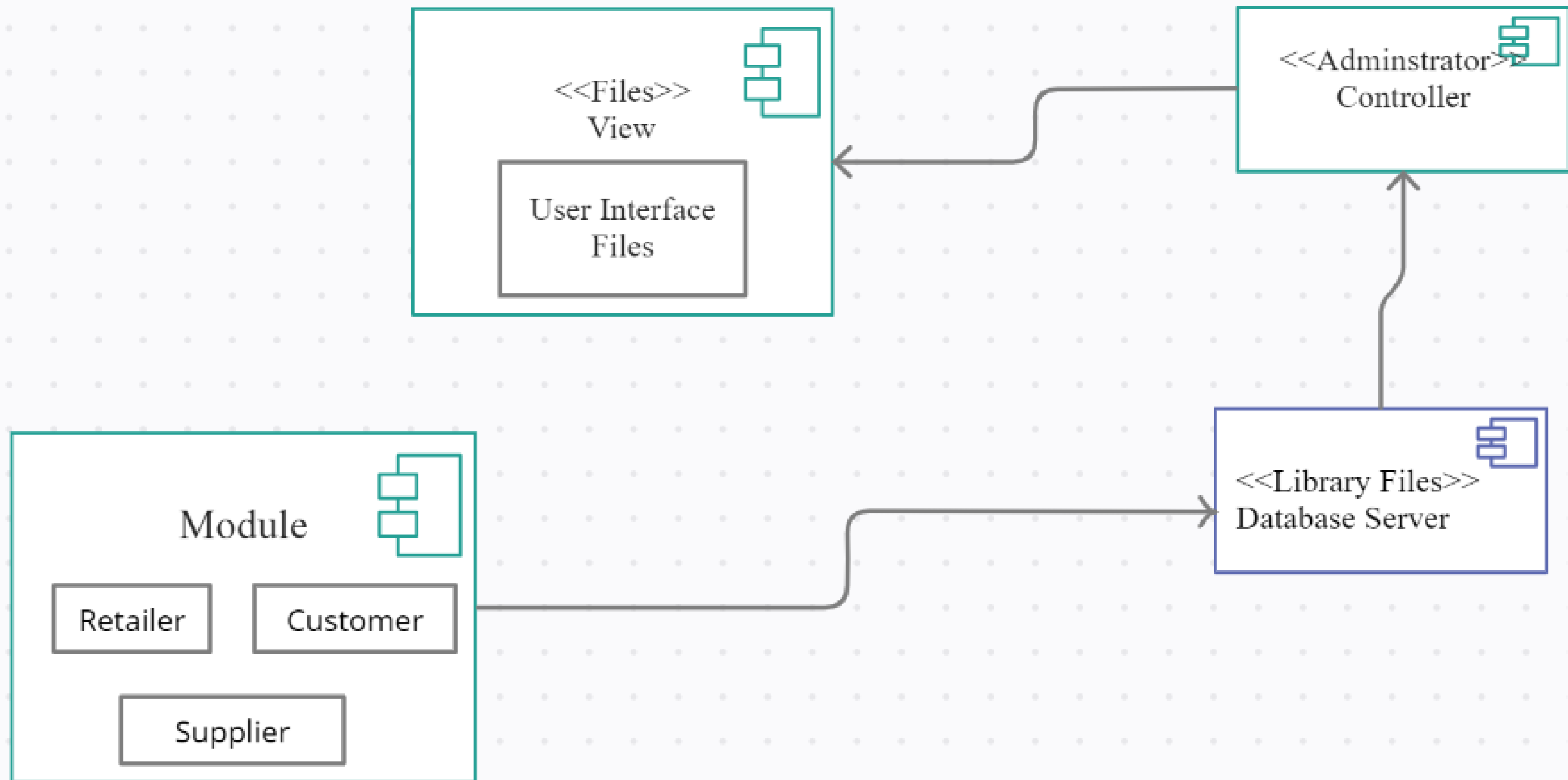
class diagram

Class consists of classname,attributes,operations. Group of classes can be connected by using some relationships.
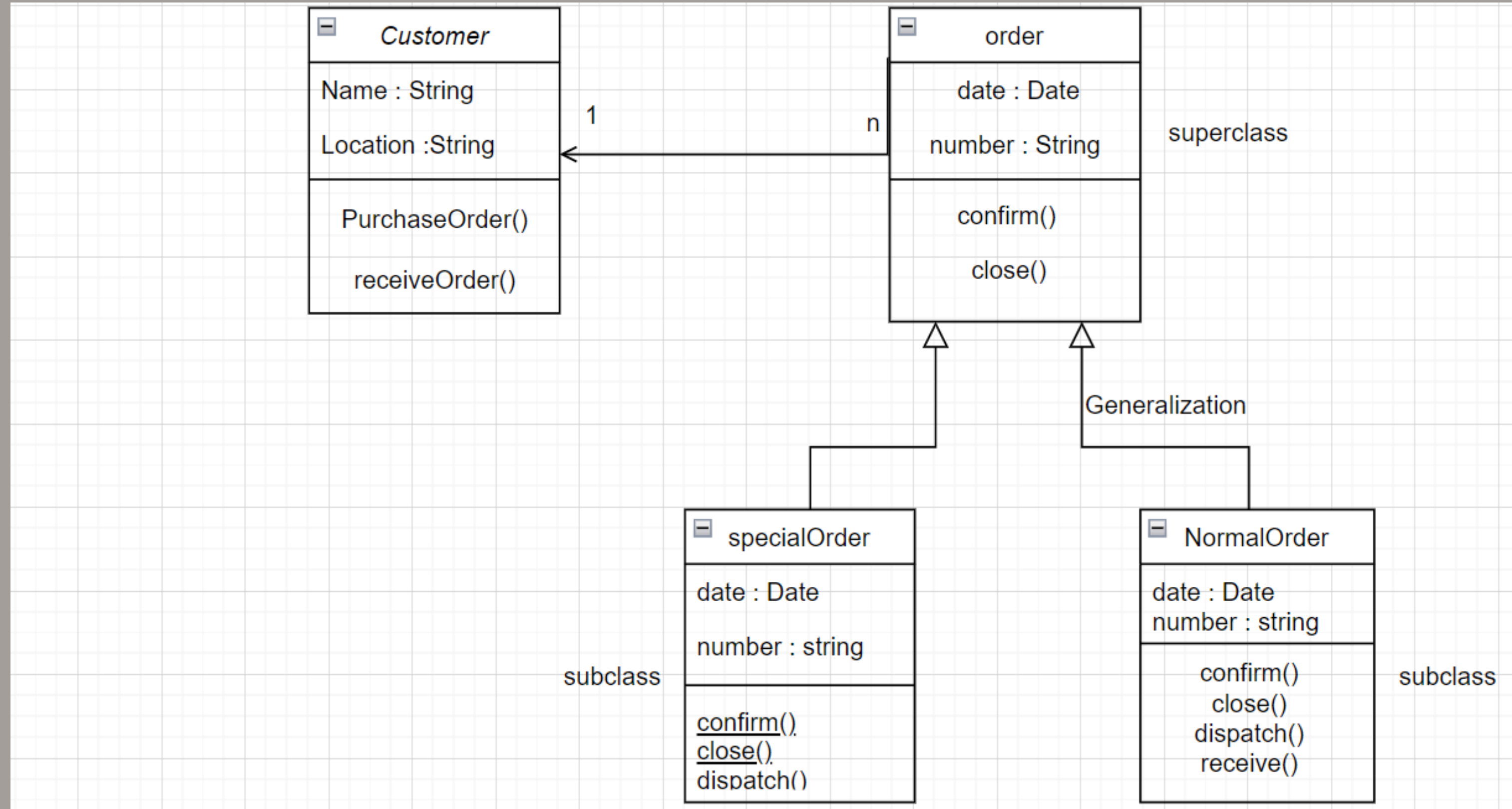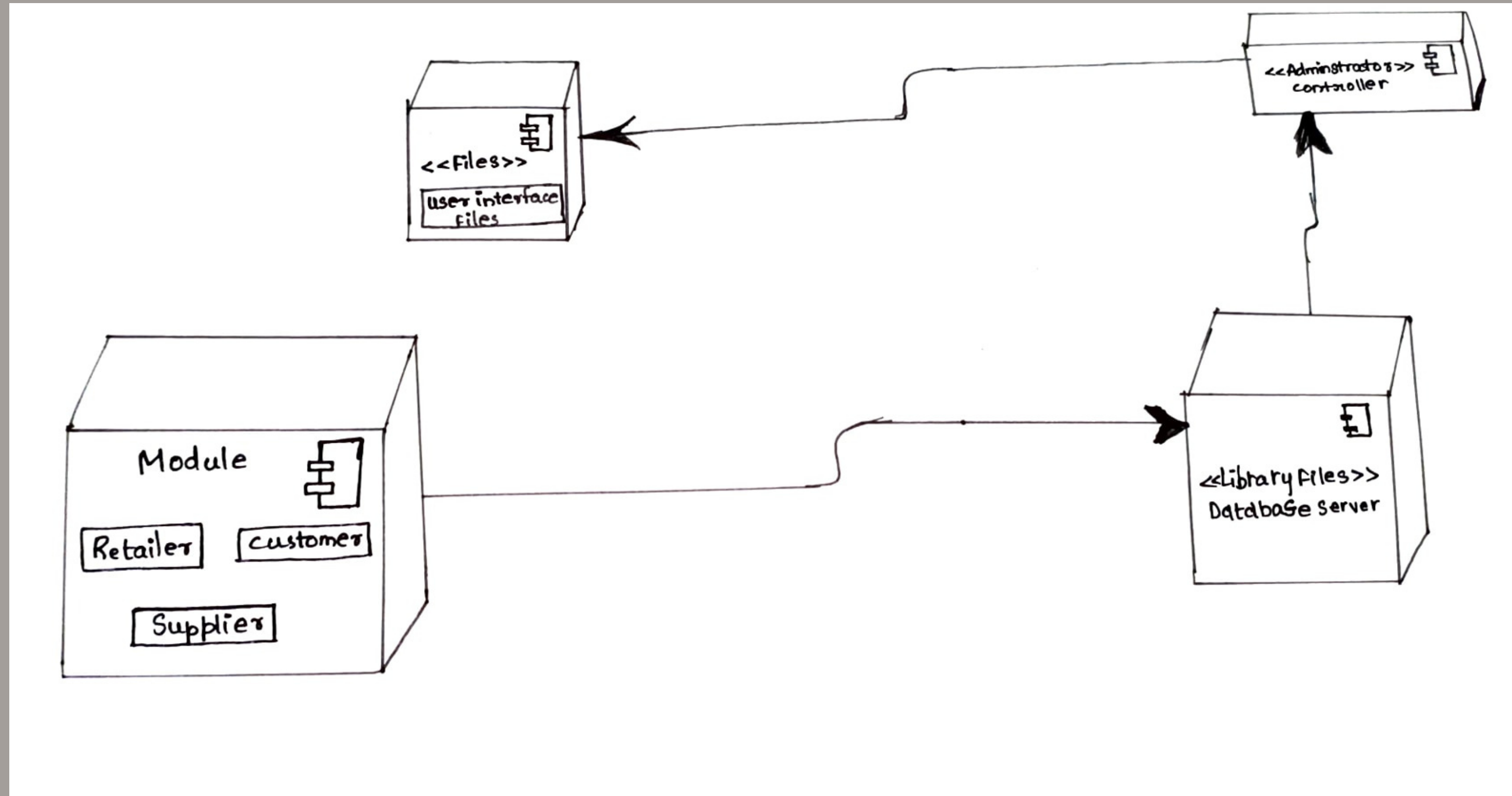
component diagram

Component diagram is used to visualize organisation and relationships among component system it consists of files ,executableprogram or app.
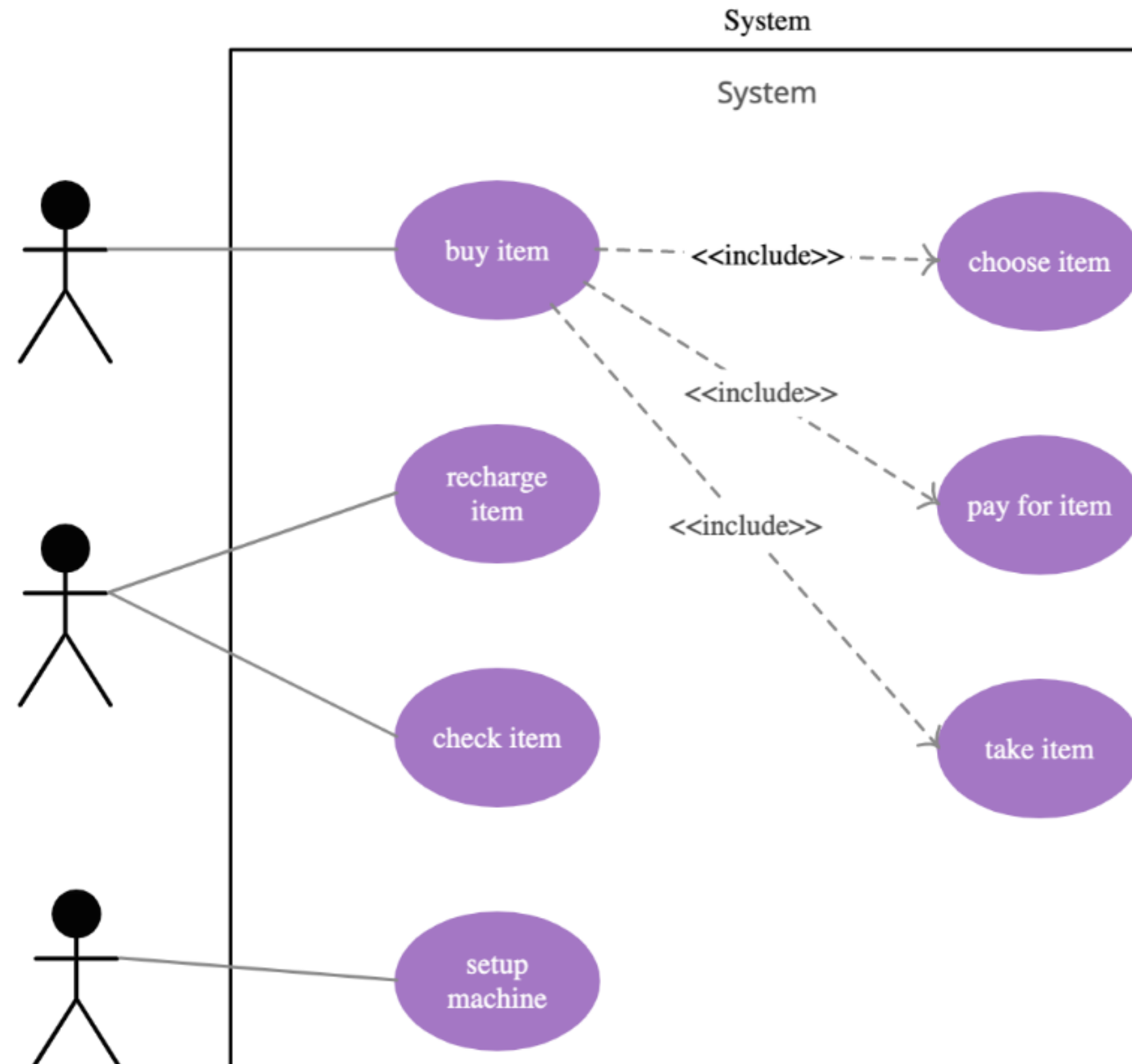
deployment diagram

deployment diagrams are used to visualize the topology of the physical components of a system,where the software components are deployed.
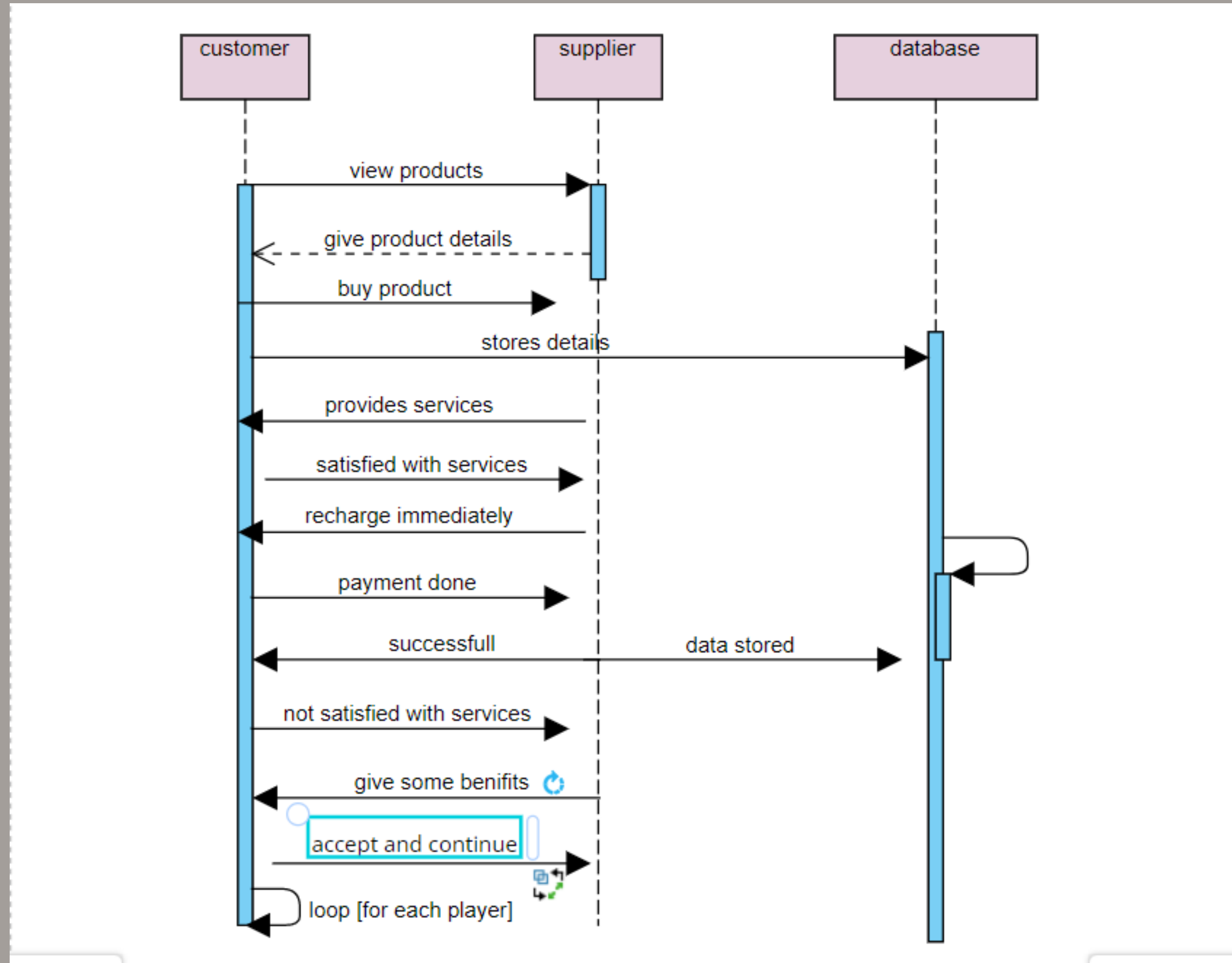
UseCasediagram

it shows the dynamic behaviour like when it is running and operating it consists of actors, associations ,usecase,and relations.
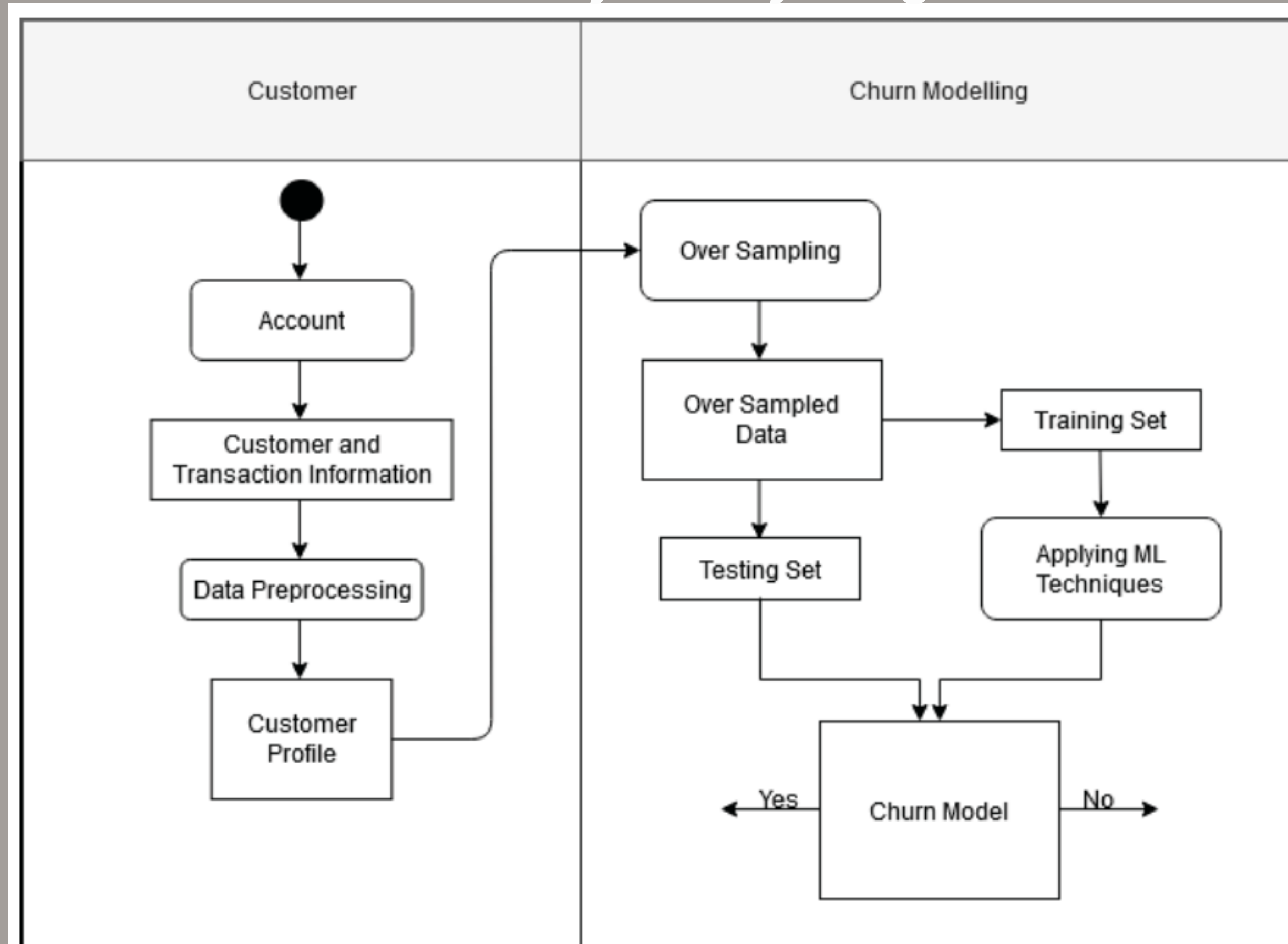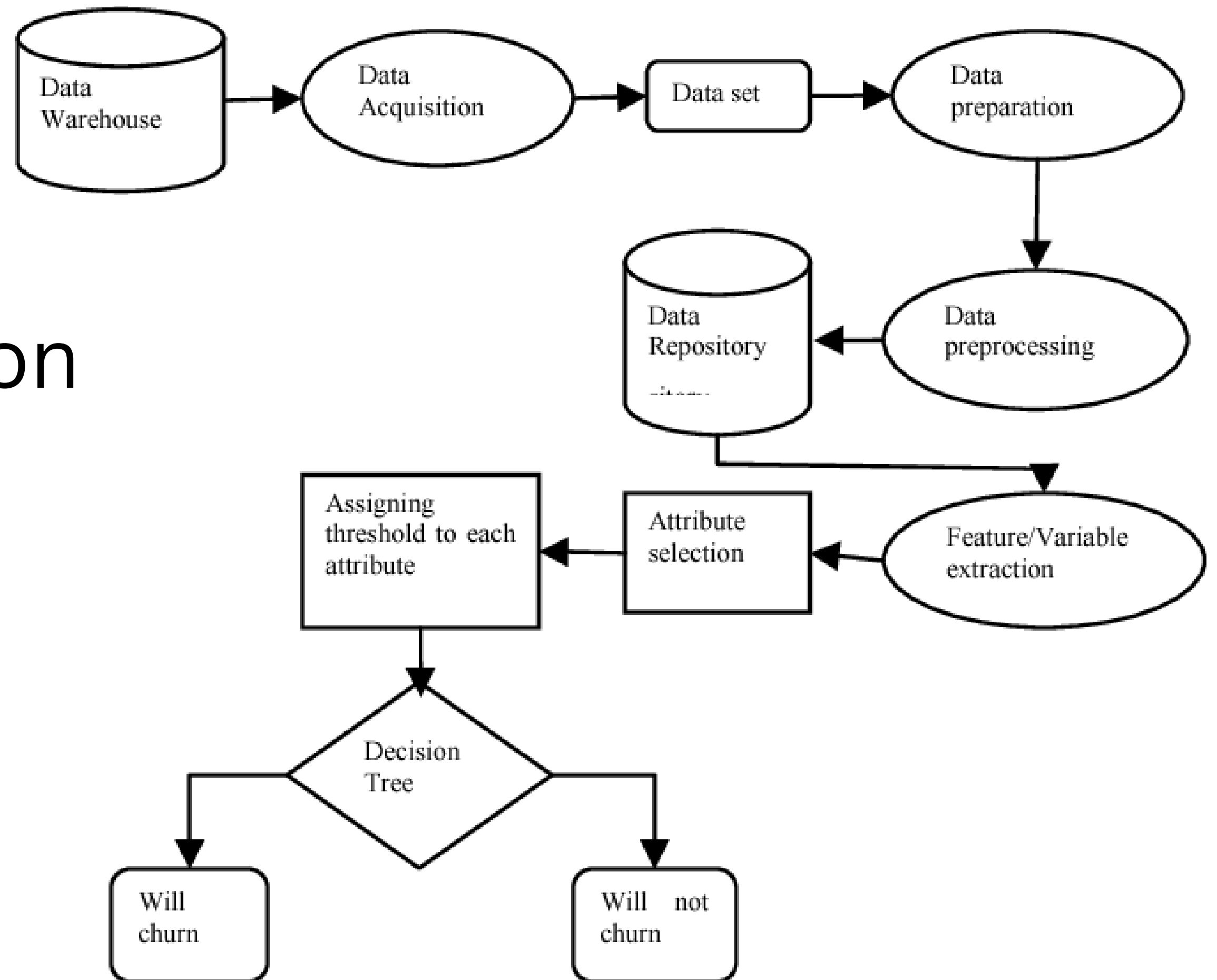
sequence diagram

Activity diagram

It is basically a flowchart to represent the flow from one activity to another activity and used to construct the executable system by using forward and rev engineering .

Churn Prediction Analysis

SURVEY

- **In paper [1]:**Front Aging Neurosci2021;13: 633752. Published on 2021 May 6
- Authors: JieMei, ChristianDesrosiers
- Machine Learning Methods Applied to the Diagnosis of PD:
- Support vector machine (SVM) and variants, Regression,
- Decision tree , Navie Bayes
- **In paper [2]:**springer open ;Published: 22 October 2020
- Author: Md. Sakibur Rahman Sajal
- Acquisition and pre processing rest tremor data of diagnosed PD patients. Wefound that k-nearest neighbors (kNN) and support vector machine (SVM) usually provide the best result in these datasets. Naive Bayes is found to perform well when the number of features is reduced.
- **In paper[3]:**Springer Link; Published: 27 June 2020
- Authors:Mostafa et. al. ,Lahmiri et al.
- They performed an approach using decision trees, naive Bayes, neural network, random forest, and support vector machine. Results around 90% of accuracy were achieved when using random forest and features selection.They performed experiments using linear discriminant analysis (LDA), k-nearest neighbors (k-NN), naive Bayes (NB), regression trees (RT), radial basis function neural networks (RBFNN), support vector machine (SVM), and Mahalanobis distance classifier. They also found results around 90% of accuracy, but now SVM performed better than the other methods.

Thank you!