Report

This paper deals with the JEE Advanced Rank Predictor modelling ,working and discusses how it can help student predict their rank. It predicts both Common and Category (OBC,SC,ST,PWD) rank. In addition,it also predicts the college one may get through the exam either through common rank or category rank. In what other ways rank predictor helps student is also discussed in the paper.Rank predictor uses what type of algorithm is also dealt and how the difficulty level factor changes the entire scenario. The limitation of the rank predictor is stated as well. The rank predictor also helps in searching college to help student know about the opening and closing rank of the college.

The objective is twofolded:

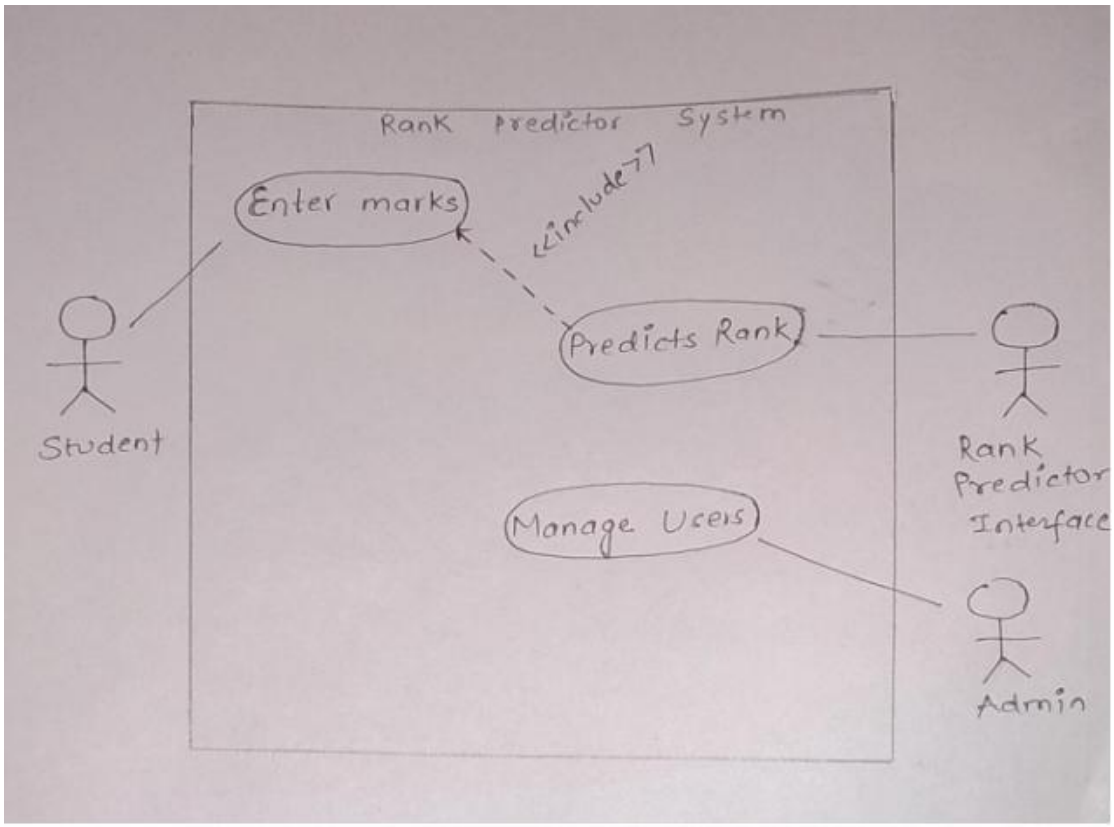
i) Helps student predict the rank & college and

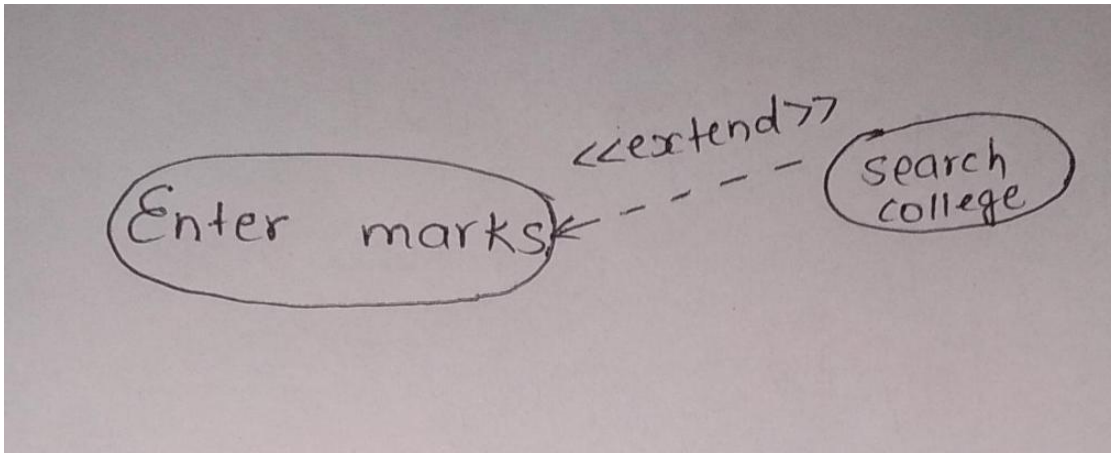
ii) Let them know if they need to prepare themself for other examination or attend counselling for other good colleges. The algorithm which predicts rank and how it ensures the accuracy and precision. Finally, how rank predictor notifies if it encounters any malfunctioning is also mentioned.

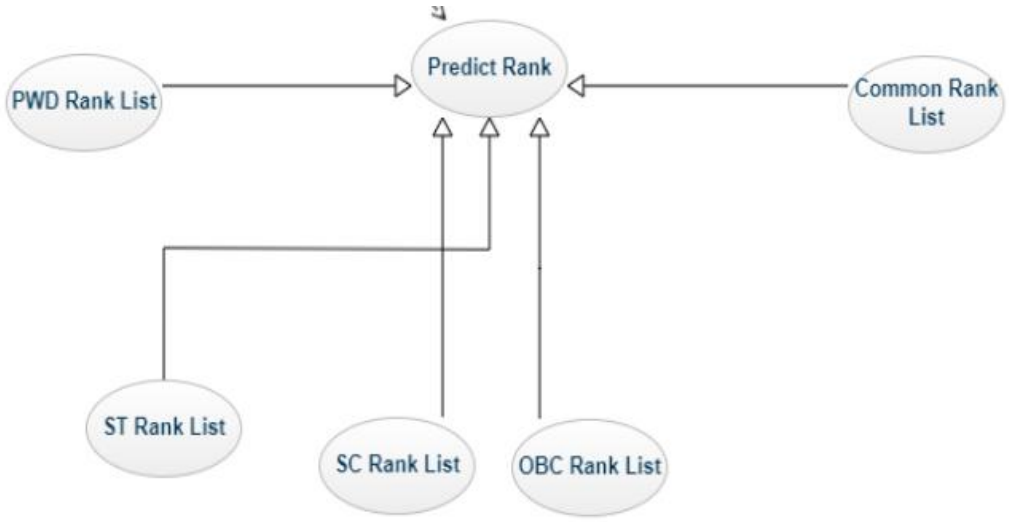
Diagrams

(1)

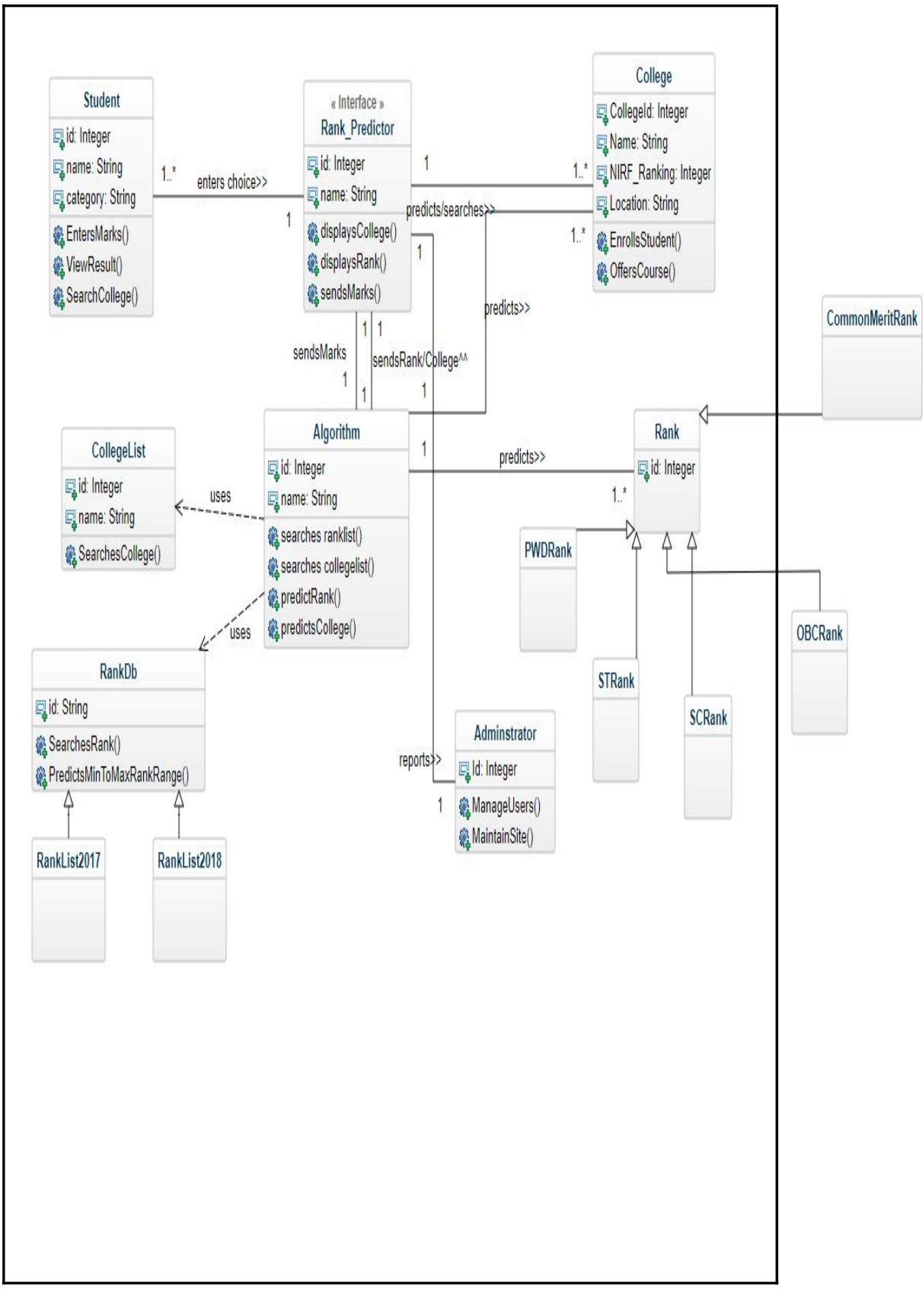
Use Case Diagram


Rank Predictor System
Enter marks
<<include>>
Predicts Rank
Manage Users
Student
Rank Predictor Interface
Admin

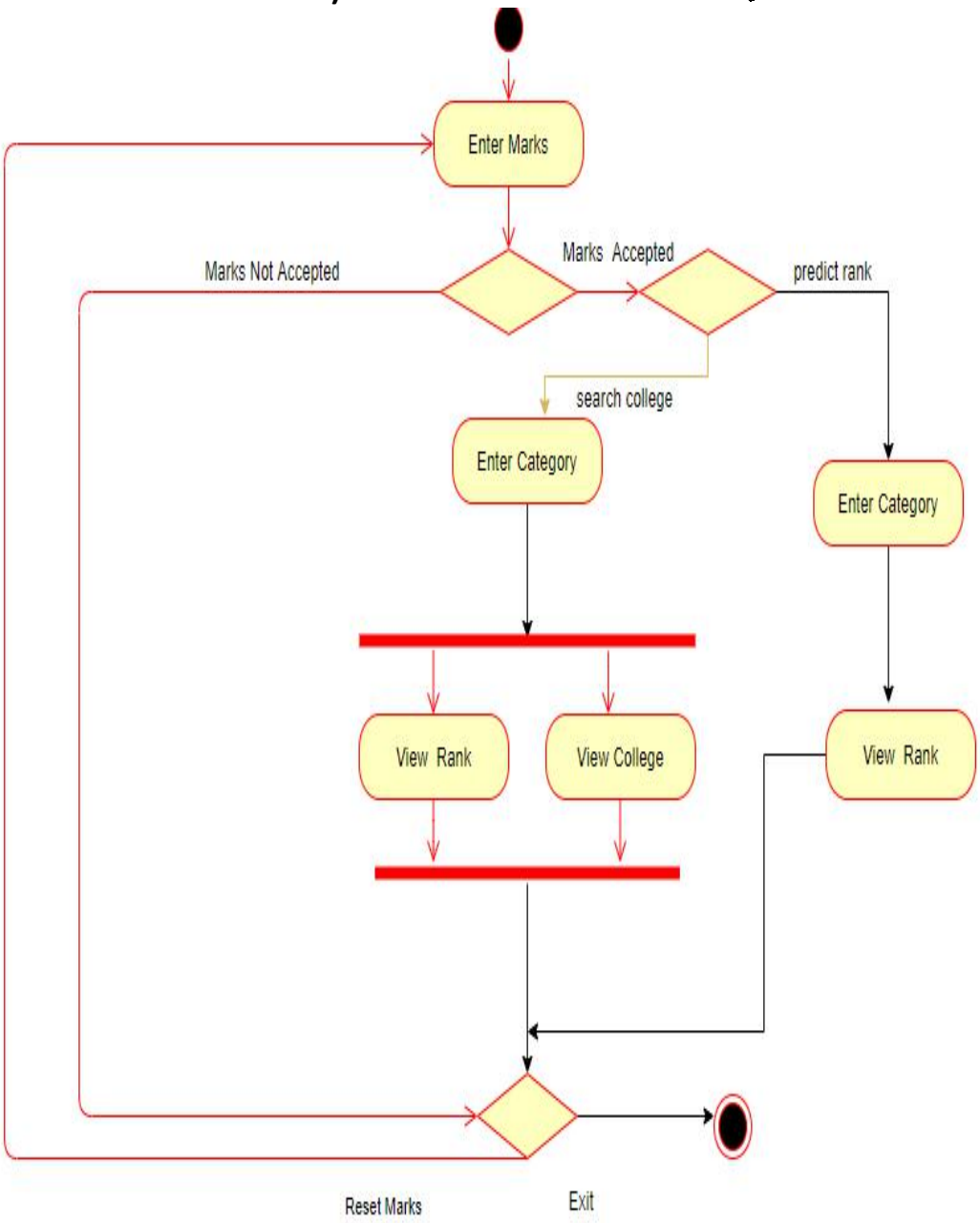

Enter marks
<<extend>>
search college



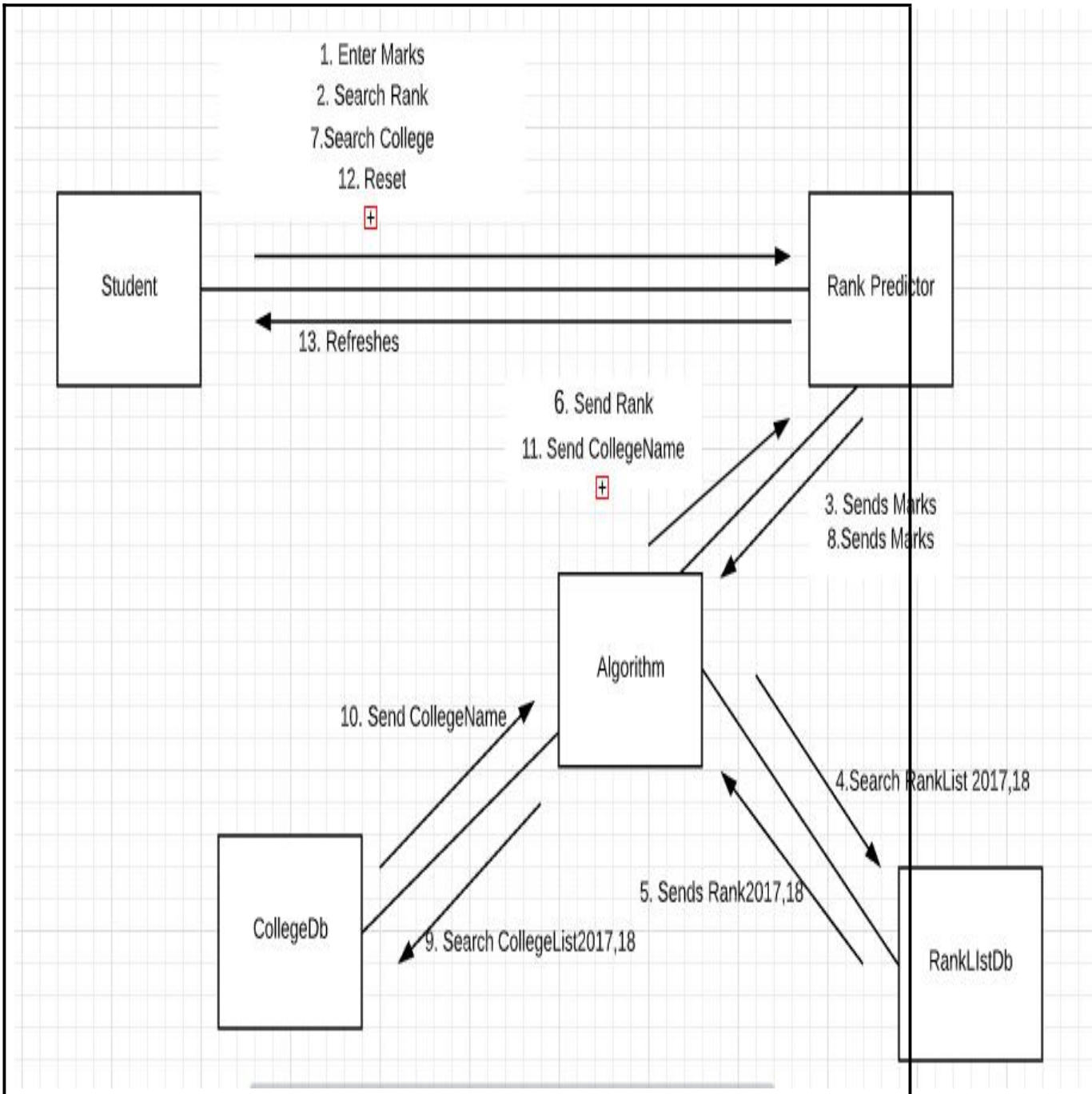
(2) Class Diagram


Student
id: Integer
name: String
category: String
EntersMarks()
ViewResult()
SearchCollege()
1..*
enters choice>>
1
« Interface »
Rank_Predictor
id: Integer
name: String
displaysCollege()
displaysRank()
sendsMarks()
1
1..*
College
CollegeId: Integer
Name: String
NIRF_Ranking: Integer
Location: String
EnrollsStudent()
OffersCourse()
predicts/searches>>
1..*
1
predicts>>
CommonMeritRank
sendsMarks
1
1
1
sendsRank/College^^
1
CollegeList
id: Integer
name: String
SearchesCollege()
uses
Algorithm
id: Integer
name: String
searches ranklist()
searches collegelist()
predictRank()
predictsCollege()
1
predicts>>
Rank
id: Integer
1..*
PWDRank
OBCRank
STRank
SCRank
uses
RankDb
id: String
SearchesRank()
PredictsMinToMaxRankRange()
reports>>
1
Adminstrator
Id: Integer
ManageUsers()
MaintainSite()
RankList2017
RankList2018

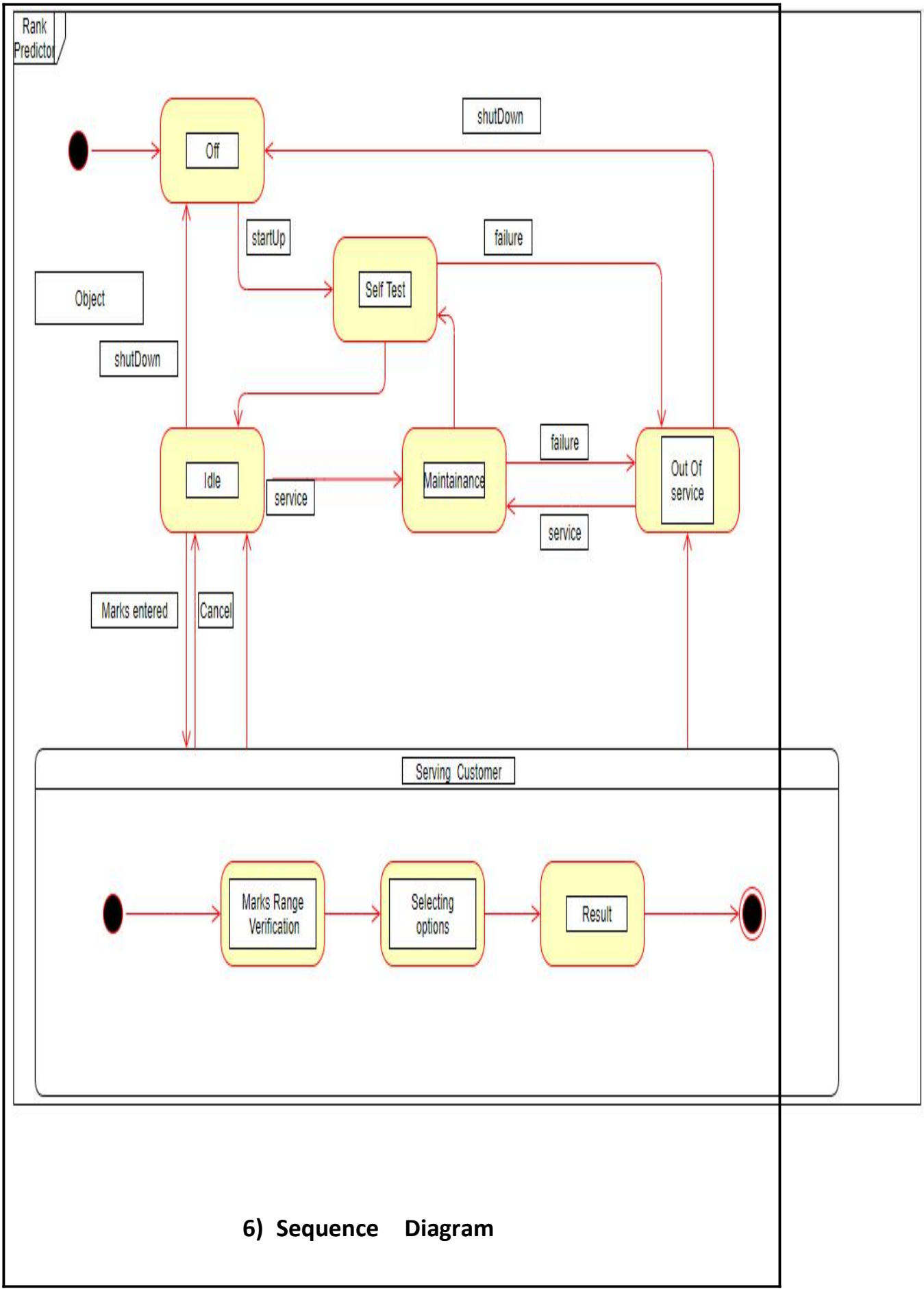
3) ACTIVITY DIAGRAM



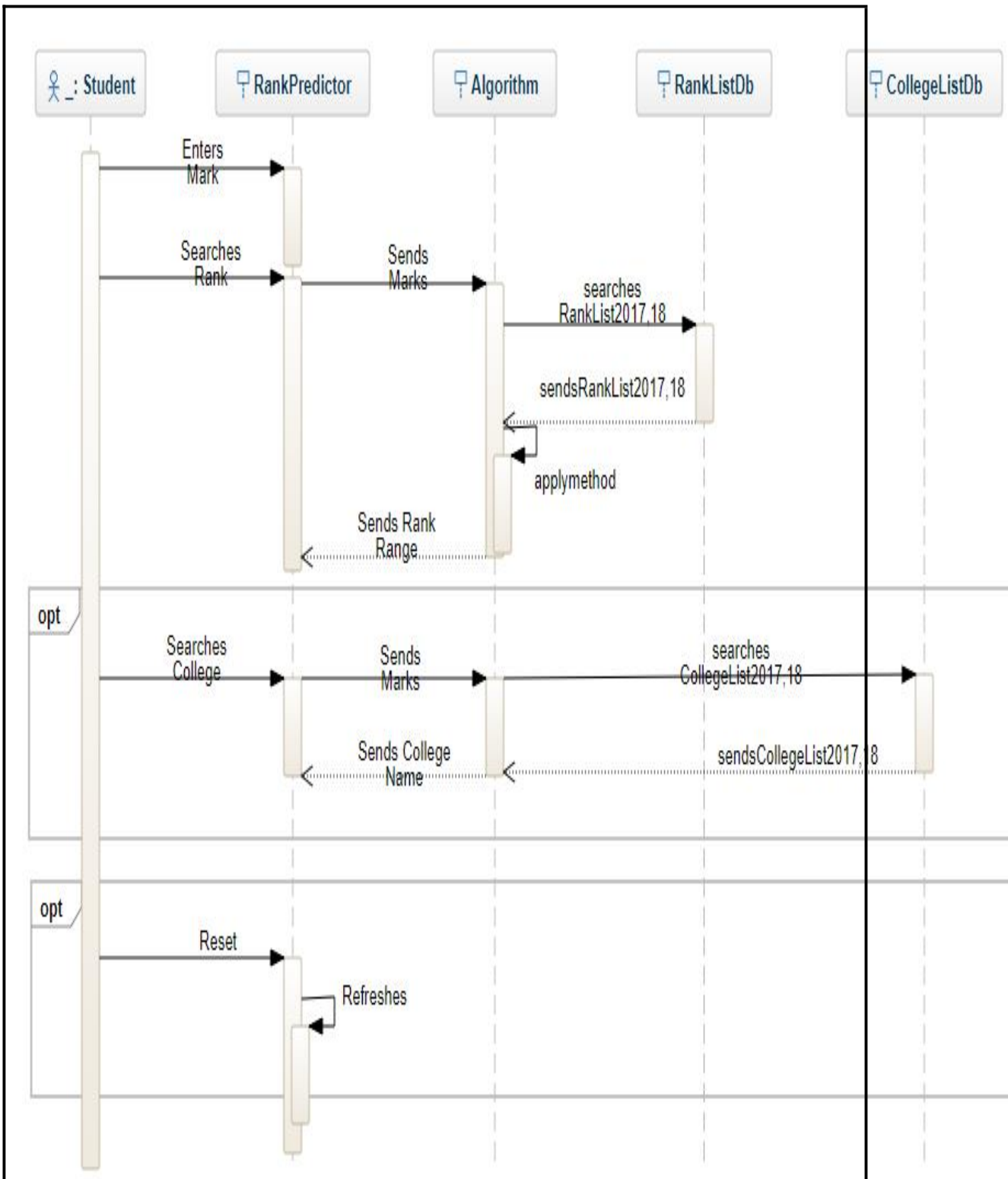
4) Collaboration Diagram



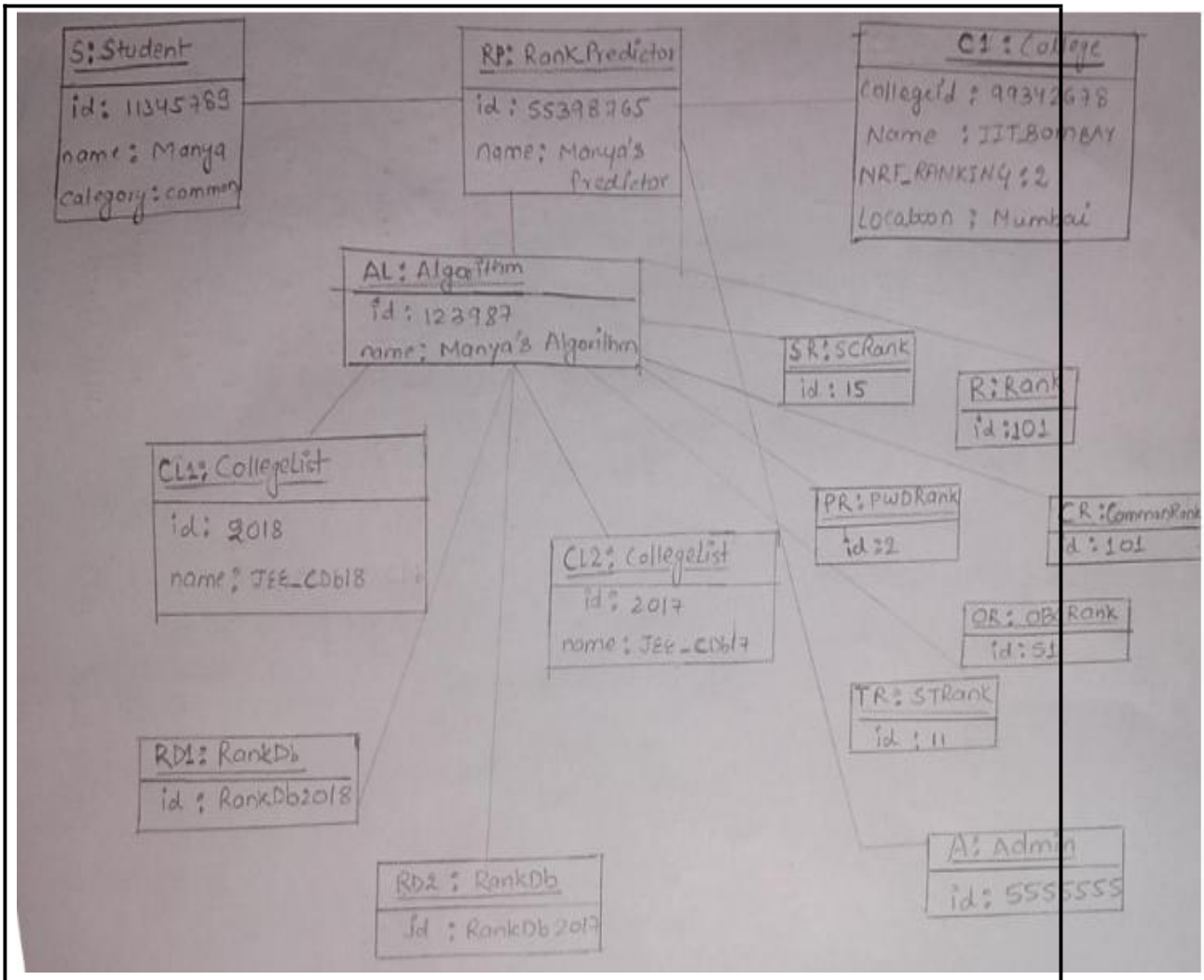
5) State Diagram



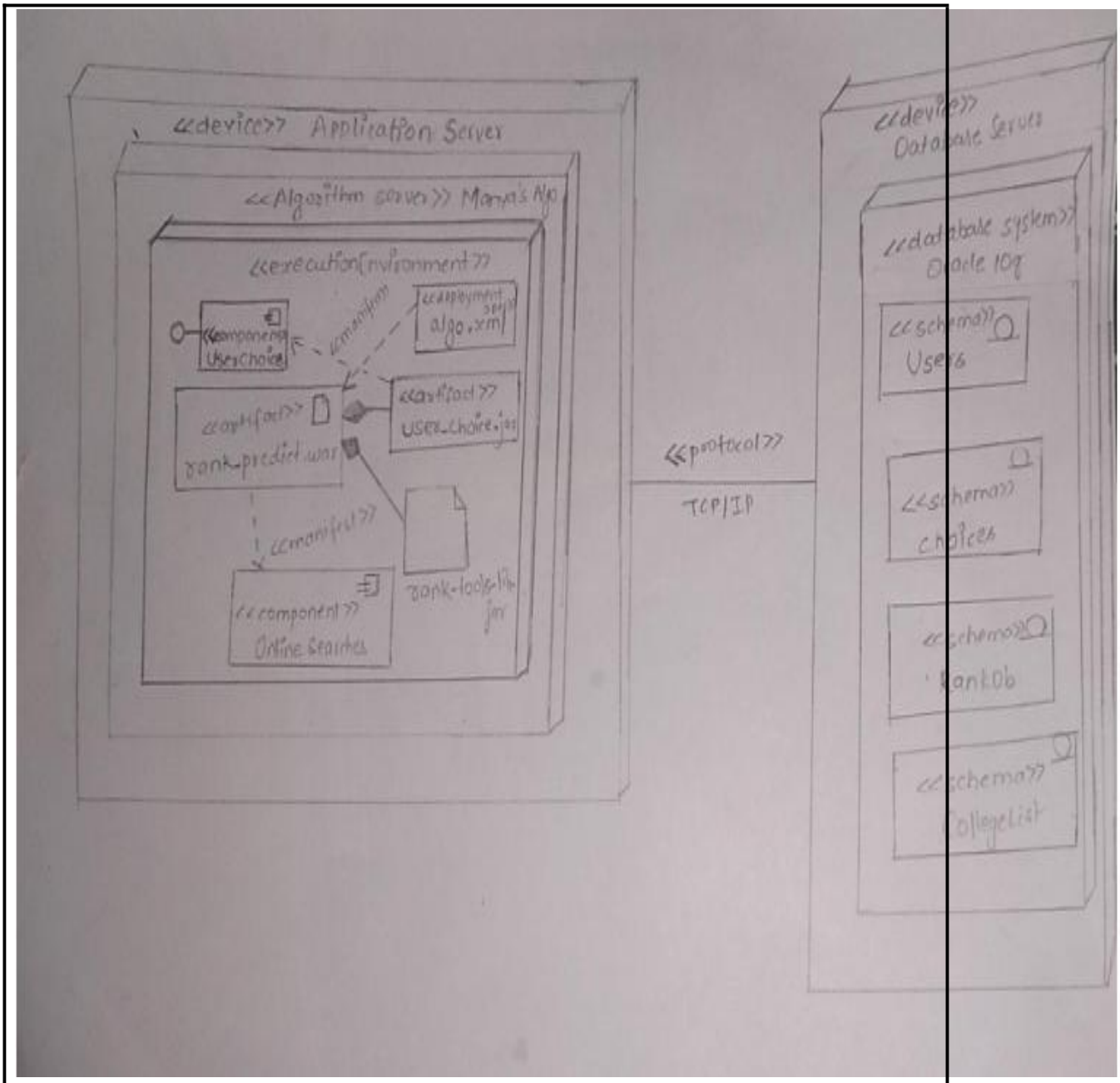
6) Sequence Diagram



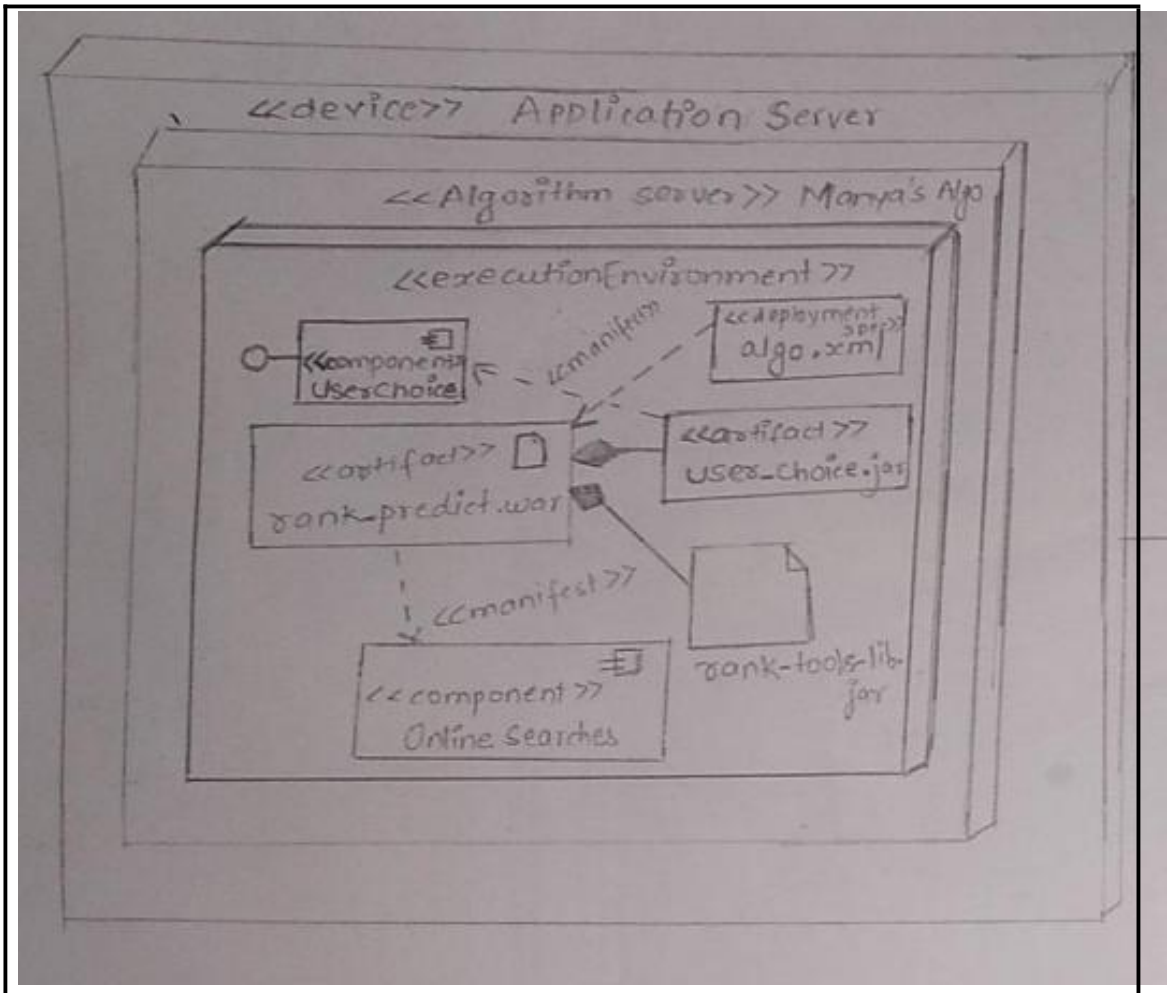
7) Object Diagram



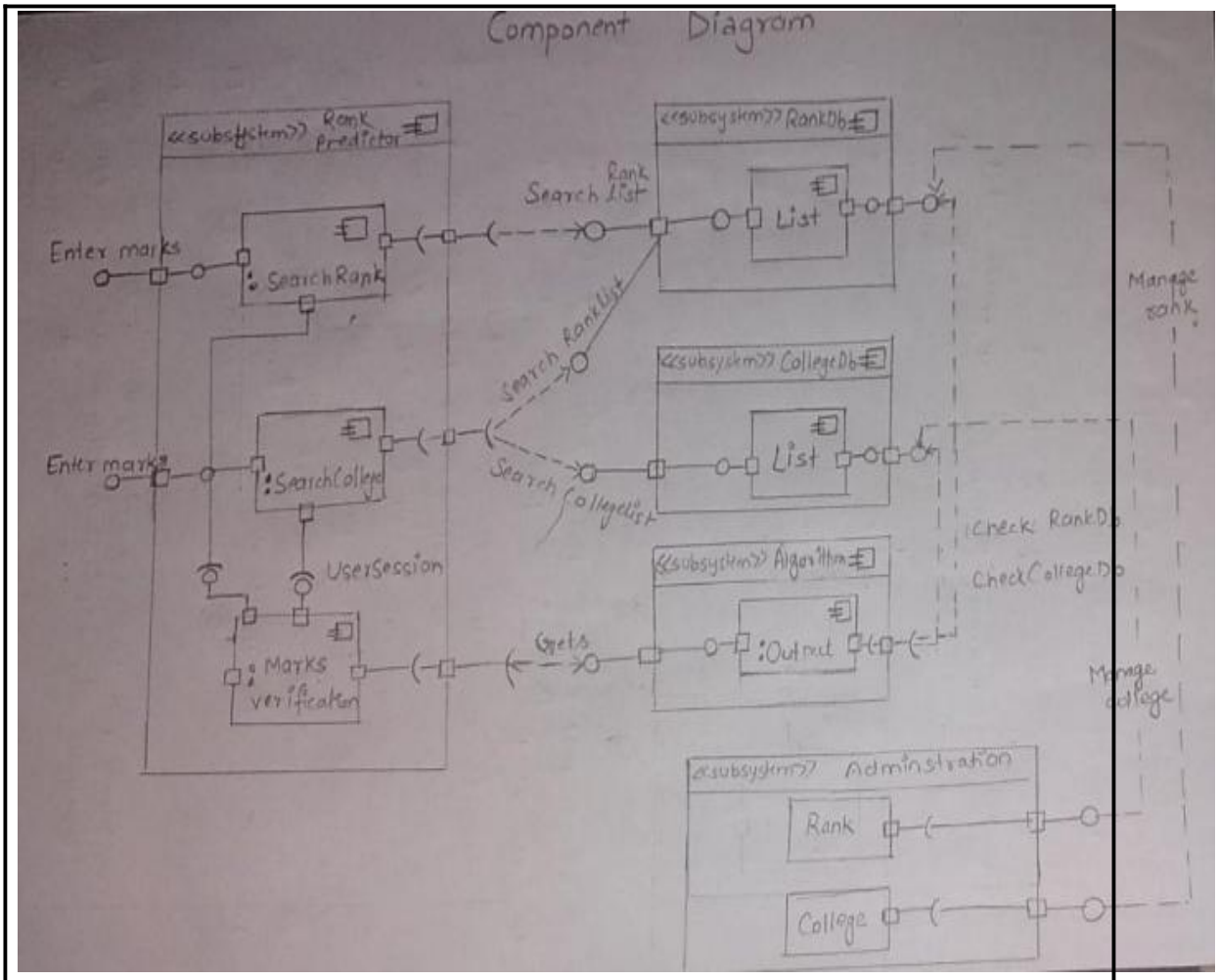
8) Deployment diagram


«device» Application Server
«Algorithm server» Manja's App
«execution environment»
«component» UserChoice
«manifest»
«deployment spec» algo.xml
«artifact» rank_predict.war
«artifact» USER_Choice.jar
«manifest»
rank-tools-lib.jar
«component» Online Searches
«protocol»
TCP/IP
«device»
«database system» Oracle 10g
«schema» Users
«schema» choices
«schema» RankDb
«schema» CollegeList

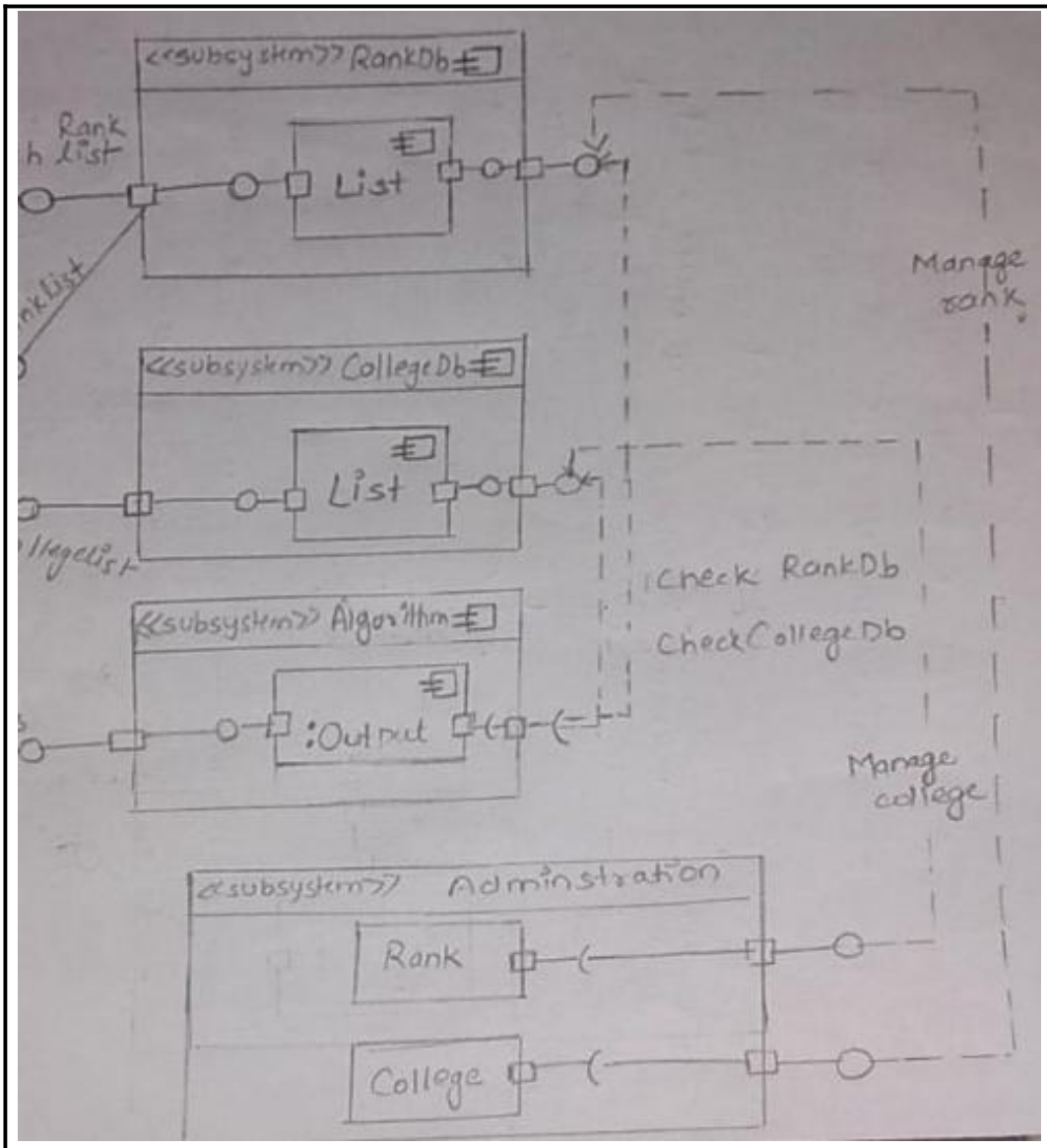
(for clarity)

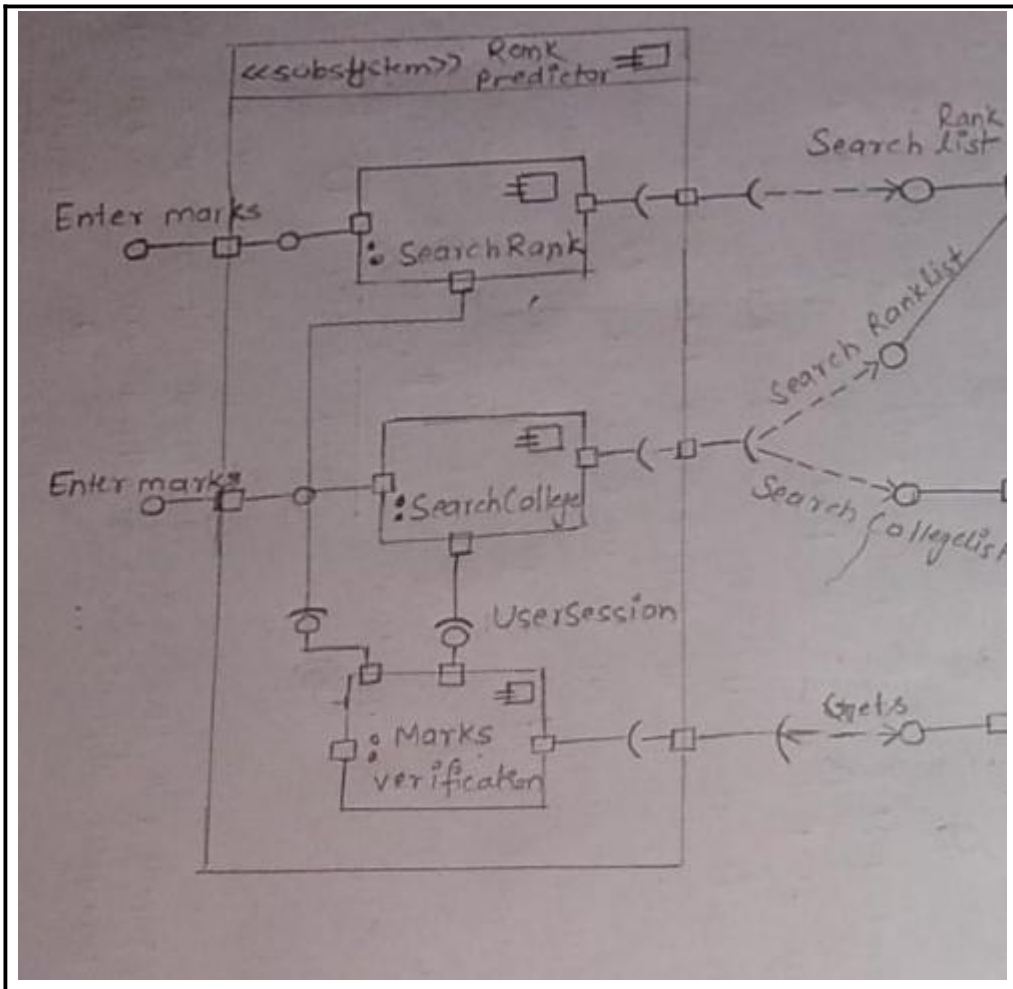


9) Component Diagram


Component Diagram
<<subsystem>> Rank Predictor
<<subsystem>> RankDb
Search Rank List
List
Enter marks
: SearchRank
Manage rank
Search RankList
<<subsystem>> CollegeDb
Enter marks
: SearchCollege
Search CollegeList
List
Check RankDb
Check CollegeDb
UserSession
<<subsystem>> Algorithm
Gets
: Output
: Marks verification
Manage college
<<subsystem>> Administration
Rank
College

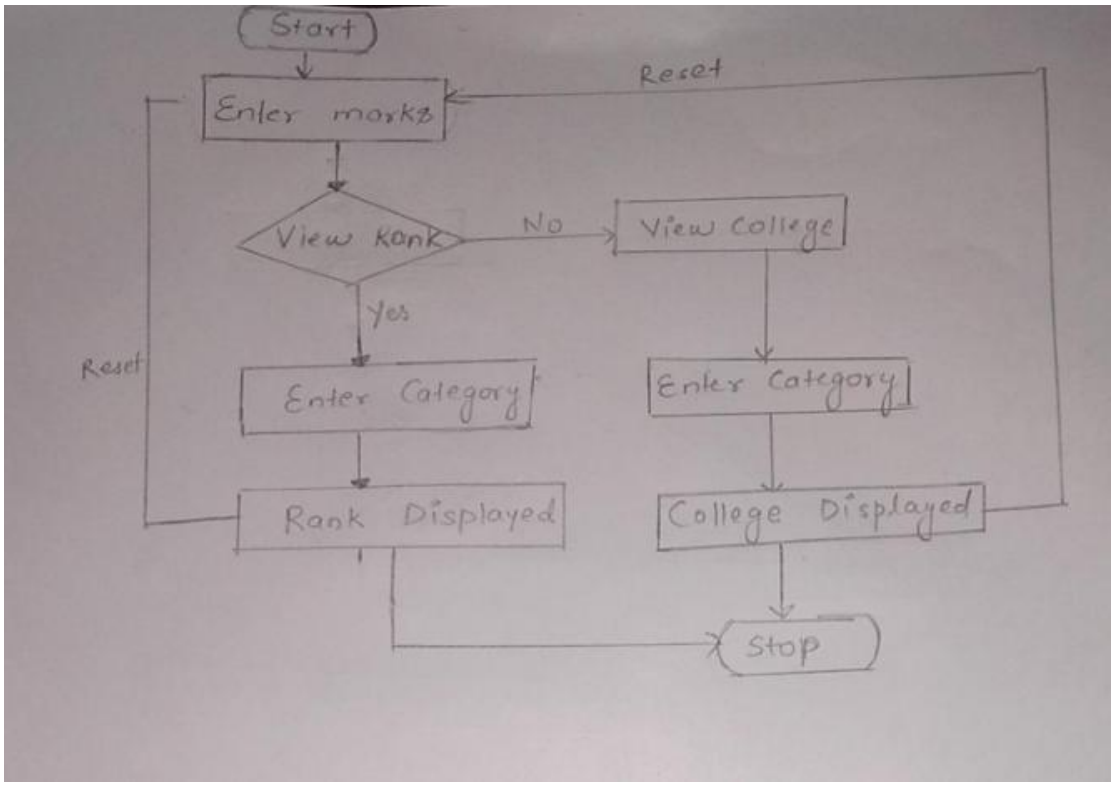
For Clarity


RankDb
List
Manage rank
CollegeDb
List
Check RankDb
Check CollegeDb
Algorithm
Manage college
Administration
Rank
College

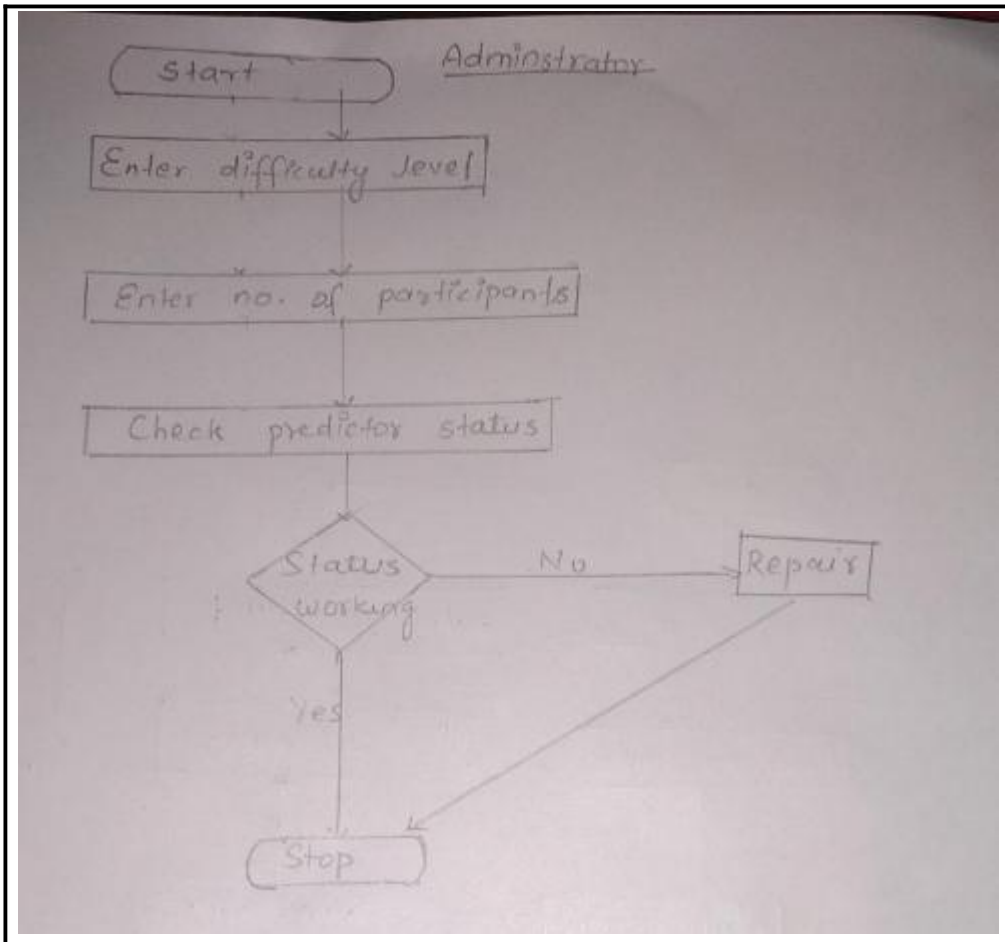


FlowChart

User



Adminstrator



Result:

Results and Comparisons

I used the predictor to calculate ranking of JEE Advance Common Rank. Despite the fact the database is fed manually so obviously marks corresponding to every rank couldn't be fed, an interval of 100 rank was taken, but still it was precise in most of the cases about the rank range.
Below are some of the results:

General Category:

Marks	Predictor's Rank Range	Actual Rank	Shiksha's Predictor
251	193-233	217	1149-**1319-** 1489
153	5637-6837	5514	**17285**

201	536-1120	1220	5049-**5493-**5937

Even Quora has many cases of rank being predicted wrongly in range of 10000s. By different predictors.