

# A Comprehensive Study & Comparison of BCA Programme Cut-Off Rank

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## ABSTRACT

*A study of the BCA Programme cut-off dataset for Round 1 is presented in this research report. For a range of courses, GGSIPU is connected with numerous colleges. The GGSIPU BCA course admissions requirements are based on the results of the CET and CUET exams. This is the GGSIPU & National Test Agencies' Common Entrance Test and Central University Entrance Test for Undergraduate Admission. The counseling process for students begins after the CET exam results. There are various rounds to this counseling procedure. Universities display the cutoff result based on round completion for each round. The cut-off result is displayed on university websites following the conclusion of the first round. Here, we are analyzing the first round of the BCA Program Academic Session 2023–24 cutoff. The fields in this dataset include Iname (Institute Name), Institute Code (Icode), course, seat intake, district, pincode, institute region and location, as well as min and max ranks based on several factors. For data analysis, we have utilized Google Colab and Python libraries. We have established a data analysis approach. Several research topics served as the foundation for this methodology. Although we have now examined the BCA program cut-off rank result round 1 and the comparison of the academic session 2023–24, this document will also be useful in the future for locating the cut-off results of other programs that the GGSIPU has been operating. This research compares the location-based accuracy of several algorithms, including logistic regression, SVM, Random Forest, and Decision Tree Random Forest.*

**KEYWORDS:** Python, cut-off, GGSIPU, Big Data, Data Analysis, Google Colab

## INTRODUCTION

The NCT of Delhi government established GGSIPU in accordance with the GGSIPU Act of 1998. This university has been awarded an A++ rating by the National Assessment & Accreditation Council of Bangalore and is recognized by the UGC India under Sections 2(f) and 12(b) of the UGC Act. This university's primary goal is to support and encourage study and research in cutting-edge fields of higher learning with an emphasis on professional education, such as engineering, technology, management studies, medical, pharmacy, nursing, law, etc [22].

"GGSIPU is committed to offering professional education with an emphasis on innovation, modernization, ongoing change, and a supportive environment for the creation and dissemination of knowledge through its efficient quality management system." The GGSIPU campus is built on 60.46 acres in Dwarka, New Delhi, a picturesque green area. Equipped with solar panels, rainwater harvesting, and sewage treatment facilities, this campus is entirely self-sufficient. Faculty, non-teaching personnel, and out-of-town students can also rent housing.

Online Centralized Counseling serves as the foundation for the GGSIPU registration procedure. In the CET, there are numerous programs and merit-based seat distributions. The GGSIPU Website offers online counseling using an internet mode. Following the CET exam and the announcement of the GGSIPU CET, candidates must use their user ID and password to complete the online counseling process. Only CET-qualified candidates will be given consideration for admission through university counseling, provided they meet all eligibility and admission requirements. During the first round of counseling, prospects select many colleges. Following the completion of Rounds 1, 2, and 3, universities occasionally post the list of cut-off colleges for each Round based on rank on their university websites [22].

We have analyzed data on the Round 1 cut-off list for the academic session 2023–24 and other topics in this research study. We have examined the cut-off for the BCA course for the 2023–24 academic year. The information is accessible in PDF format at GGSIPU ipuadmission.nic.in. Following that, we added certain fields for analysis and transformed the data into a CSV file. In accordance with the study plan and questions, new fields have been added. The deadline for online

admission counseling courses was the main topic of this essay. This paper's primary goal is to examine the rank-wise list of BCA colleges (affiliated with GGSIPU) based on several rounds.

We have examined all universities based on their location, region, and several category rankings based on round cutoff. The information is accessible in PDF format at GGSIPU ipuadmission.nic.in. Following that, we added certain fields for analysis and transformed the data into a CSV file. In accordance with the study plan and questions, new fields have been added. Numerous pieces of information are included in this dataset, including the name of the institute, its area and location, and several categories including OPNOAI (KM All India), NOMMAI (Muslim All India), OPNOHS (GN Delhi), and NOJNAI (JAIN All India).

The number of institutes in Delhi, Greater Noida, and other NCR locations is one of the parameters used to formulate the research question. Locate the institute based on its area and identify the initial cut-off. Institute's ranking in relation to several categories. We are conducting analysis using Google Colab and a few Python methods and tools. To address our study topic, we are utilizing methodologies related to data visualization. We have been conducting data analysis on 40 BCA colleges that were included in the first round of the cutoff list. [22].

### DATA COLLECTION & DATA PREPARATION

Here is a data analysis for the academic session 2023–24 for the Round 1 cut-off list, among other things. We are analyzing the cut-off for the BCA course for the academic periods 2023–2024. The information is accessible in PDF format at GGSIPU ipuadmission.nic.in. Following that, we added certain fields for analysis and transformed the data into a CSV file. In accordance with the study plan and questions, new fields have been added. Our CSV collection now includes a few new fields. District, pincode, Iname, Icode area, and location are the names of the fields. [22].

### DATA PROCESSING

After gathering data, digesting that data is the most crucial duty. It is employed to extract redundant, noisy, and unnecessary data from a dataset.

Sno	Iname	Icode	Course	Intake	district	Area	location	pincode	NOKMAIN	NOKMAIN	NOMMAI	NOMMAI	NODFHSM	NODFHSM	NOPHHS	NOPHHS	OPNOHS	OPNOHS	SCNOHS	SCN
1	BCIITK	111	BCA	60	South	Kalkaji	Delhi	110019	4763	4763	0	0	2901	2901	0	0	537	1780	2757	
2	BTTS	284	BCA	60	South	Okhla Roa	Delhi	110025	0	0	0	0	0	0	0	0	1991	3190	0	
3	CPJ-I	215	BCA	60	North	Narela	Delhi	110040	0	0	0	0	0	0	0	0	937	3324	4040	
4	CPJ-II	242	BCA	60	North	Narela	Delhi	110040	0	0	0	0	0	0	0	0	2707	3970	0	
5	COMMIT	120	BCA	60	South	Sheikh Sai	Delhi	110017	0	0	2443	5839	0	0	0	0	508	3390	0	
6	DIRD	124	BCA	30	North	Nangli Pui	Delhi	110036	0	0	0	0	0	0	0	0	2703	3979	0	
7	DTC	180	BCA	60	GBN	Greater N	Greater N	201306	0	0	0	0	0	0	0	0	745	3565	5268	
8	DBIT	195	BCA	60	South	Okhla Roa	Delhi	110025	0	0	0	0	0	0	0	0	924	2856	3996	
9	FIMT-I	514	BCA	60	South We	Kapashere	Delhi	110037	0	0	0	0	0	0	0	0	1060	2944	4555	
10	FIMT-II	901	BCA	30	South We	Kapashere	Delhi	110037	0	0	0	0	0	0	0	0	2509	3290	0	
11	HIMT	134	BCA	45	East	Karkardoc	Delhi	110092	0	0	0	0	0	0	0	0	395	2846	3540	
12	IITM-I	137	BCA	120	South We	Janakpuri	Delhi	110058	1456	1456	0	0	3853	3972	0	0	210	855	1619	
13	IITM-II	211	BCA	120	South We	Janakpuri	Delhi	110058	0	0	0	0	0	0	0	0	786	1149	5313	
14	IINTM-I	244	BCA	120	South We	Janakpuri	Delhi	110058	0	0	0	0	0	0	0	0	465	1211	3975	
15	IINTM-II	903	BCA	120	South We	Janakpuri	Delhi	110058	0	0	0	0	0	0	0	0	1054	1473	2422	

Table 1: Cut -Off Rank Dataset Academic Session 2023-24 csv File

BCA Institute Short Name & Code			
Institute Name	Institute Code	Institute Name	Institute Code
BCIITK	111	KIHEAT-I	281
BTTS	284	KIHEAT-II	967
CPJ-I	215	KRCHE	193
CPJ-II	242	KCCG	274
COMMIT	120	LLDIMS	192
DIRD	124	MSI-I	149

DTC	180	MSI-II	212
DBIT	195	MERI-I	151
FIMT-I	514	MERI-II	351
FIMT-II	901	SGITSM	247
IIMT	134	SBIT	899
IITM-I	137	SIRIFORT-I	167
IITM-II	211	SIRIFORT-II	243
IINTM-I	244	SGTBIMIT-I	902
IINTM-II	903	SGTBIMIT-II	911
JIMSR-I	140	TIAS-I	170
JIMSR-2	504	TIAS-II	213
JIMSV-I	142	TIIPSG	279
JIMSV-II	214	TIPS-I	206
JIMSEMTCG	255	TIPS-II	240
VIPS-I	177	UNITED	271
VIPS-II	298		

**Table 2: BCA Institute Short Name & Code**

\*\* Here -I & -II indicate is shift I & II

### DIFFERENT ADMISSION CATEGORIES

S No.	Abbreviation Of Category		S No.	Abbreviation Of Category	
1	NOJNAI	JAIN All India	9	SCNOHS	SC Delhi
2	NOKMAI	KM All India	10	STNOHS	ST Delhi
3	NOMMAI	MUSLIM All India	11	NODFOS	DF Outside Delhi
4	OPNOAI	GN All India	12	NOPHOS	PH Outside Delhi
5	SCNOAI	SC All India	13	OPNOOS	GN Outside Delhi
6	NODFHS	DF Delhi	14	SCNOOS	SC Outside Delhi
7	NOPHHS	PH Delhi	15	STNOOS	ST Outside Delhi
8	OPNOHS	GN Delhi			

**Table 3: Different Admission Categories**

### METHODOLOGY

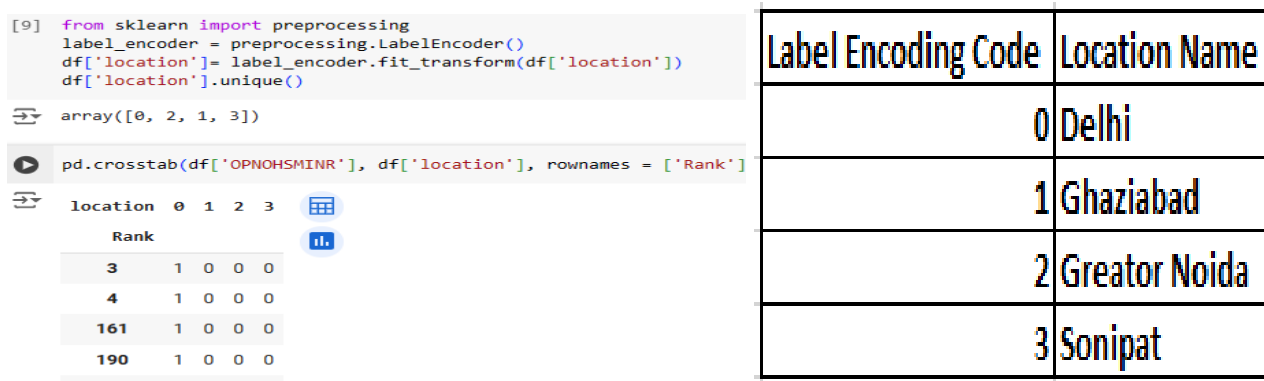
University provides the deadline in a PDF file. Change the format of this dataset to CSV or Excel now. After that, run a cut-off analysis using this data. Python and Collab are used to find the results based on the research questions. As a result, the following research questions are put forth in this study:

#### RESEARCH QUESTIONS (Based on Academic Session 2023-24)

1. How many BCA institutes are there in Delhi and the surrounding areas (NCR)?
2. How can an Institute be analyzed and visualized based on Area?
3. How can the seat intake for BCA courses at various Institutes be analyzed and visualized?
4. How may the Institute be examined and represented district-by-district?
5. How can the Institute be examined and visualized using pincodes?
6. How can the lowest and maximum category ranks be compared using the Institute code?

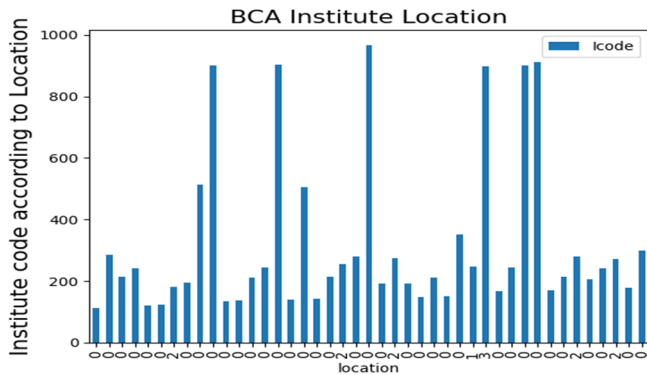
**RESEARCH STRATEGY**

For our research project, we used Google Colab and a few Python libraries. To address our study issue, we have employed methodologies related to data visualization. The following search terms are the ones that came up: student performance in light of the following points: The acronyms for the institute are: ID (Institute District), IP (Institute Pincode), ICOC (Institute Cut-off according to various category), ISI (Institute Seat Intake), IA (Institute Area), and II (Institute Location).



**Fig 1: Label Encoding of Location**

**RESULT ANALYSIS & DISCUSSION**

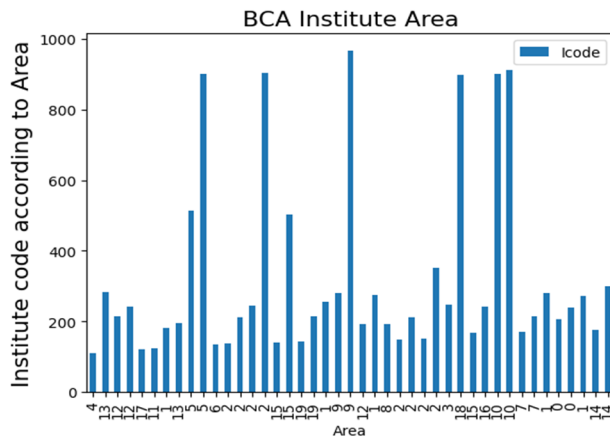


**Fig 2: Institute code according to Location**

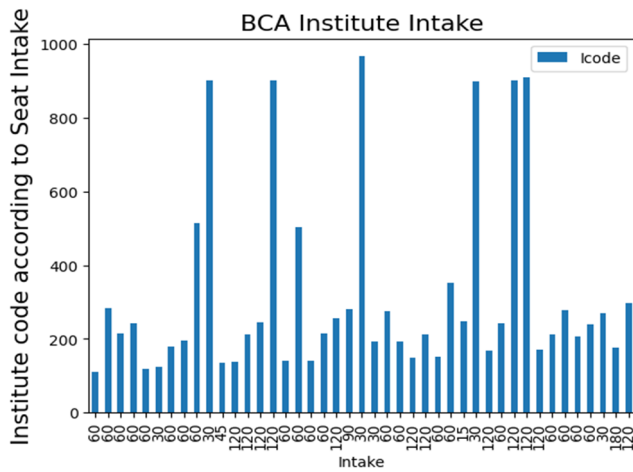
**To analysis according to IL (Institute Location):** This section includes an analysis of the institute's location based on its code. More than forty institutions offer shifts I and II, and they are spread out across several locations. Here, label encoding has been employed. Following label encoding, the following locations are indicated: 0 for Delhi, 1 for Ghaziabad, 2 for Greater Noida, and 3 for Sonipat. How many BCA institutes are there in Delhi and other locations (NCR) as depicted in this diagram?

**To analysis according to IA (Institute Area):**

This section contains an examination of the Institute Area based on the Institute code. More than forty colleges, spread throughout several locations, provide shifts I and II. Here, label encoding has been employed. Once the area was labeled, it was separated into codes ranging from 0 to 19. This graphic illustrates the number of BCA institutes by area.



**Fig. 3: Institute Code according to Area**



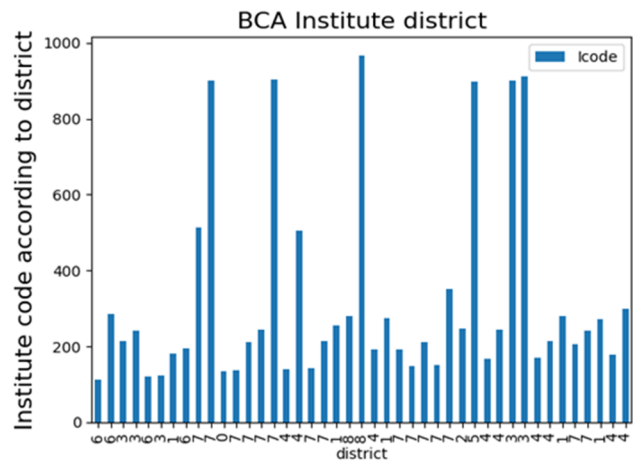
**Fig. 4: Institute code according to Seat Intake BCA Course**

**To analysis according to ID (Institute District):**

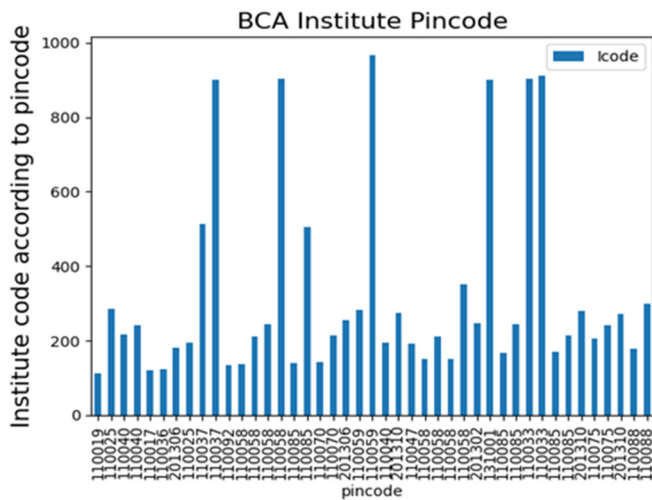
This section contains an examination of the Institute District based on the Institute Code. There are over forty institutions to choose from, and each one is situated in a distinct neighborhood. Here, label encoding has been employed. Following label encoding, the district was split up into codes 0 through 8. The resultant Institute code according to district is displayed in this diagram.

**To analysis according to ISI (Institute Seat Intake):**

We have analysis based on Sanction Institute Seat Intake in this section. More than forty institutions offer shifts I and II, and each institution has a designated seat intake. We must examine and visualize the seat intake for BCA courses at various institutions using this figure.



**Fig. 5: Institute District according to Institute Code**

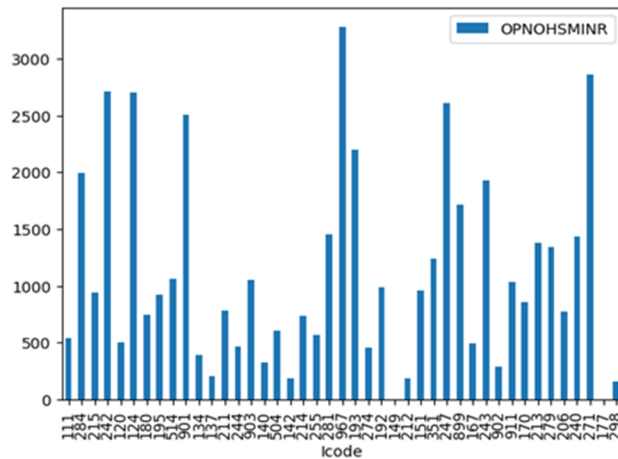


**Fig. 6: Institute Pincode according to Institute Code**

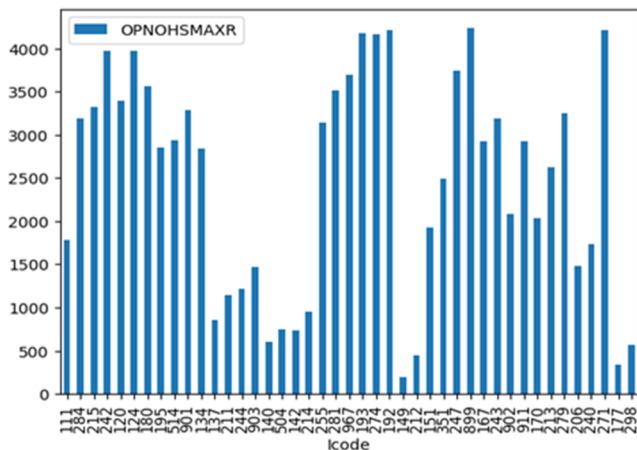
**To analysis according to IP (Institute Pincode):**

This section contains our analysis based on the Institute Pincode. There are more than forty colleges to choose from, and each one is located using a pincode. We must examine and visualize the Institute code in this diagram using the pincode.

**Comparison of OPNOHSMINR by Institute Code:** This graph compares the Minimum Rank for the GN Delhi category (OPNOHS) based on Icode.



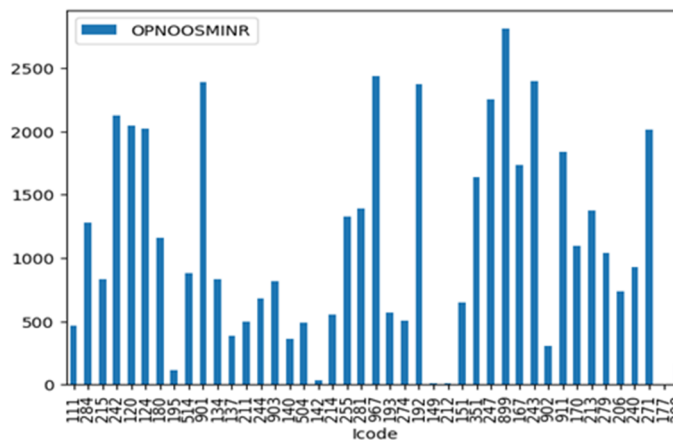
**Fig. 7: OPNOHSMINR vs Institute Code**



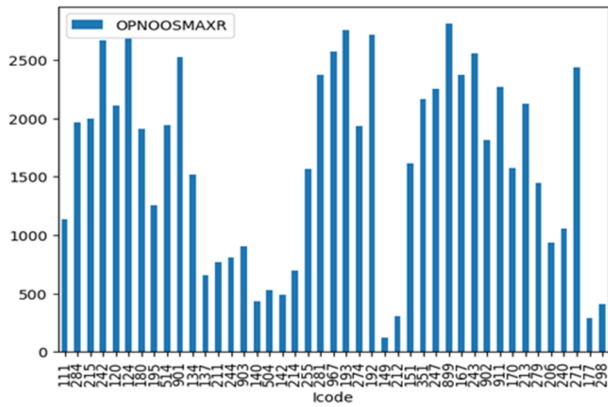
**Fig 8: OPNOHSMAXR vs Institute Code**

**Comparison of OPNOHSMAXR by Institute Code:** This graph compares the Maximum Rank for the GN Delhi category (OPNOHS) based on Icode.

**Comparison of OPNOOSMINR by Institute Code:** The comparison of the General Outside Delhi category (OPNOOS) Minimum Rank based on Icode (Institute Code) was shown in this graph.



**Fig. 9: OPNOOSMINR vs Institute Code**



**Comparison of OPNOOSMAXR by Institute Code:** The comparison of the General Outside Delhi category (OPNOOS) Maximum Rank based on Icode (Institute Code) was shown in this graph.

**Fig 10: OPNOOSMAXR vs Institute Code**

**Performance Analysis**

The suggested approach's performance evaluation criterion is based on multiple statistical measures, including:

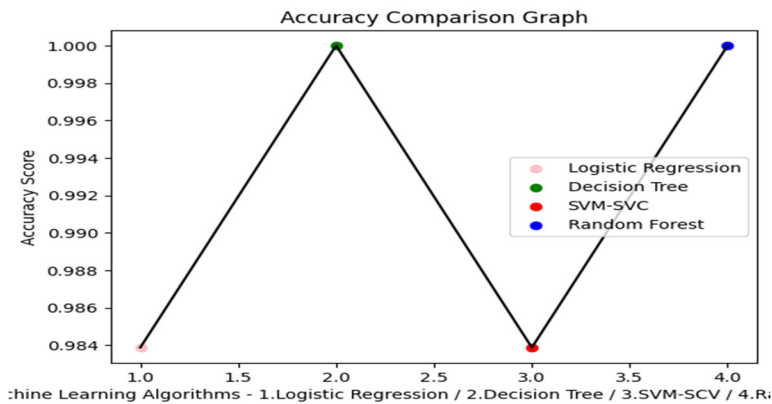
- True Positive (TP), which is the quantity of correctly predicted class examples where the actual location is one (True) and the predicted location is one (True).
- The number of correctly identified non-class cases whose real location is zero (False) and whose predicted location is also zero (False) is known as True Negative (TN).
- False Positive (FP) refers to situations in which the expected class of the location point is one (True), while the actual class was zero (False).
- A False Negative (FN) location is one that is mistakenly identified; that is, a place where the predicted class is zero (False) but the actual class of the location point was one (True).

The following formula is used to assess the correctness of the suggested algorithm using these four parameters (TP, FP, TN, and FN) (Anand & Bansal, 2016) [23]

$$\text{Accuracy} = \frac{TP+TN}{TP+FP+TN+FN}$$

The suggested algorithm's accuracy is computed and contrasted with that of various current algorithms that have been used to the same data set, including Random Forest, Support Vector Machine (SVM), Decision Tree Classifier (DTC), and Logistic Regression (Sadhasivam and Kalivaradhan, 2019). This demonstrates that the prediction algorithm is operating accurately and giving the user links to websites linked to their search terms.

The maximum accuracy for the suggested Random Forest method & Decision Tree method is 100%, whereas the greatest accuracy for the Logistic Regression & Support Vector Machine is 98%, as depicted in the plotted graph in Figure 12. Compared to other algorithms now in use, this accuracy % is far greater.



**Fig. 12: Accuracy Comparison Graph according to location**

## FUTURE SCOPE & CONCLUSION

The research conclusion can be found at the end of this publication. The finest tool for research is Google Colab. During the first stage, we managed and saved data using Google Colab researcher tools for data analysis, and we determined the outcome based on a certain field. Finding the minimum and maximum rank based on location, area, district, and seat intake is made easier with the help of this document. This article examines the round 1 cut-off dataset for the academic session 2023–2024 and compares it to the previous round based on category and Icode. This study just analyzes the BCA course. In the future, we'll improve and compare every course that is associated with GGSIPU, as well as do a cut-off study of each course. To determine the accuracy based on location, we have utilized four algorithms thus far (0 & 2 location). The accuracy comparison graph by location is seen above. We plan to improve machine learning and deep learning processes in the future, as well as apply machine learning algorithmic techniques for prediction to a range of courses.

**Note: For more studies linked to the BCA cut of rank data analysis 2022-23, please check reference no. [22].**

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