

# Rank Analysis Clustering of Challenges (Activities) of an Autonomous Educational Institution Examination Branch

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**Abstract-** Autonomous affiliation is a great representation and also challenging one for an Educational Institution / College. Before and after achieving Autonomous affiliation, an organization has to follow a set of rules and has to maintain the standards. An Institution requires two essential things for successful Autonomy. They are Admissions branch and Examination branch. This paper mainly concentrates on second element. An Autonomous College Examination branch has challenges in form of various activities. Some activities can require confidentiality and the others cannot.

Even though an Organization is autonomous, few activities still work under authorized University under which the Organization got affiliation. Autonomous Organization has to follow the University rules/regulations as well as its own. In Autonomous College Examination branch activities can be fulfilled with various levels of designated professionals. An autonomous institution Admissions and Original Degree document issuing by the authoritative university only.

**Index Terms-** Autonomous, Clustering, Rank Analysis.

## INTRODUCTION

Data Mining is an extraction of Knowledge from various data sources such as data bases, flat files, Data marts and so on. In any activity we require related knowledge for analysis and to take further decisions. A knowledge oriented decision helps in success of an organization. In Data Mining, Knowledge Extraction can be performed using techniques such as Clustering, Association, Classification, Prediction and so on. To perform Clustering, we have algorithms such as K-means, K-medoids, PSO, Adaptive methods so on[1].

In Clustering mechanism, the data items can be categorized into groups (Clusters) so that the intra cluster distance is minimum and inter cluster distance is maximum as possible. Clustering algorithms widely used in Knowledge Data Discovery (KDD). In Clustering we've supervised and Unsupervised learning[2]. We can use unsupervised learning which is a knowledge extraction using Clustering without

any prior knowledge. In this we cluster activities of an Autonomous Examination branch activities to be conducting in a regular manner based on supervised learning. We can also cluster the activities using Case Based Reasoning(CBR) using similarity of activities[3].Also sometimes clustering can be performed by Analogy[4].

An Educational Institution can be promoted as autonomous under a University if and only if the university believes that an organization can be able to run itself as Autonomy. Generally initial time limit after getting autonomy is three years and thereafter the affiliation will be renewed. Other Government bodies give their Accreditation via Grades to an autonomous institution. An Autonomous Educational institution has two major components – Admissions branch and Examination branch.

As per the principle of autonomy of inquiry and heeding the warning of the constraint of normal science, the Chinese management research community can shape its own future by engaging in research that may contribute to global management knowledge and address meaningful local management problems[5]. Similarly Autonomy can improve an organizational abilities and also solves many problems locally as possible.

The initiation to take an Admission through an entrance exam by University then after the college work starts. All the initiation to report in the organization taken care by Admissions branch. Further activities by individual departments and finally for examinations conduction by Examination branch. In Examination branch various activities are going on in prior to the Examination conduction, during and after completion of Examinations. How to handle various activities is also a knowledge extraction process as the activities should be done in a proper and particular order. Each activity has its own importance. The activities categorizations can be conducted by using Artificial Intelligence.

The persons/professionals/staff related to these activities should be from various levels. Some activities require more confidentiality whereas remaining are less confidential. Based on the Confidentiality level and also level of work, number of persons involvement in an activity can be decided.

**Background:**

Basically an Educational institution works under and to follow the rules and regulations of an authorized governing body such as a University. During improvisation, an organization's management believes in employee capability and hence applied for Autonomous. To give autonomous authorization, University has to verify the standards and progress of the College. Once after believing that the college is able to run itself as autonomous, University grants autonomy to the institution. But admissions giving and Original document issuing still under University. For any Autonomous Educational institution conduction Examination branch activities in a successful manner is a challenging task. Each activity might involves various levels of designated professionals. Based on the designation and also confidentiality, professional involved in one or more activities. Based on this level of work we categorize activities. Generally in any Autonomous organization Examination branch activities might be controlled and monitored by Organization Principal (Head of the Institution). Hierarchy of activities conducted under a Professor or Dean, an Associate Professor or an Additional Control of Examinations (ACE), Assistant Professor, Non-Teaching Staff and Outsiders of College (only for evaluate Answer scripts).

Some colleges also apply for Deemed University if the management believes that College itself runs all the activities including Original Document issuing.

**Related Work:**

Generally in any Autonomous Institution Head of the Institution/Principal involves in high level of activities for Planning and Monitoring of all these activities. Professor or a Dean is first responsible person for conduction an activity. Associate Professor or ACE is the direct person who initiates an activity. Finally an Assistant Professor and a Non-Teaching physically works on activity.

The following is the list of major activities conducting in an Autonomous Examination branch:

- 1) Academic Calendar Preparation (ACP)

- 2) Examination Notifications (EN)
- 3) Registration for Regular/Supplementary Examinations (RRSE)
- 4) Examinations Schedule (ES)
- 5) Answer Scripts Data generation as per the Schedule (ASDS)
- 6) Hall Tickets Generation/Printing (HTGP)
- 7) Nominal Rolls Generation/Printing (NRGP)
- 8) Invigilation's Schedule (IS)
- 9) Question Papers Collection (QPC)
- 10) Question Paper Printing (QPP)
- 11) Room wise Answer Scripts/Question Papers dispatch (RASQP)
- 12) Answer Scripts Receiving (ASR)
- 13) Answer Scripts Valuation (ASV)
- 14) Results Processing (RP)
- 15) Results Declaration (RD)
- 16) Marks Memos Printing (MMP)
- 17) PC/CMM Generation/Printing (PCGP)
- 18) Issuing of PCs and CMMs (IPC)
- 19) Processing Data for OD Generation (PDODG)

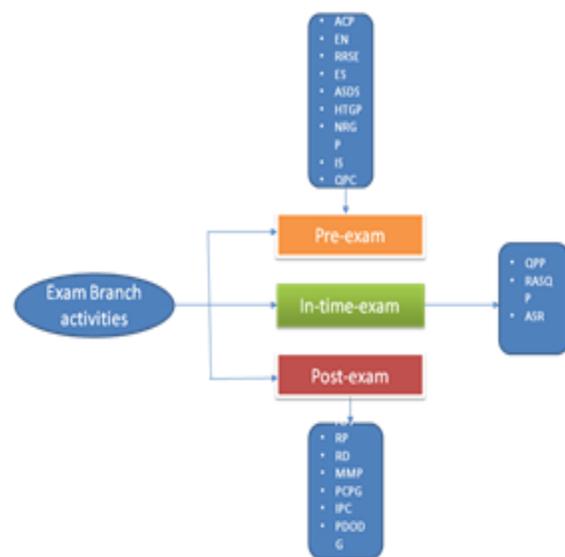
The above activities can be categorized into three groups:

**Pre-exam activities:** The activities which are conducted before the actual Examination time

**In-time activities:** The activities that are conducted during the Examination time

**Post-exam activities:** The activities that are performed after conduction of Examinations.

It can be described as follows:



Algorithm:

Step 1-Start

Step 2 -Analyze the activities required for Examination branch.

Step 3 -Now assign values for various levels of designated Groups/persons as shown in Table 1.

Step 4 -Enter number of persons required from each group for an individual activity and store in a database as per Table2.

Step 5 -Computer Rank Analysis using Effort and total number of persons involved.

Step 6 -Now Cluster the activities based on the Rank Analysis and represent using various colors/shapes diagrammatically.

Step 7 -Update the values whenever requires then recomputed, regenerate the Clusters and plot them in a 2D diagram (Scatter Diagram).

Step 8 -Evaluate step 2-7 if we need any changes in the activities/persons update.

Step 9 -End.

Rank Analysis:

For each and every activity we compute Rank Analysis (RA) based on the person/group rank. The computation of RA can be as follows:

Rank Analysis (RA) = (No. of persons Effort Required of an task ) \* (No. of persons totally involved in the task)

$$RA = \sum_{i=1}^6 Rank(i) * n(i)$$

The value of each category can be assumed as follows as per level of their work:

S.No	Person / Group	Value
1)	Non-Teaching	1
2)	Persons out of college	2
3)	Assistant Professor	2
4)	Associate Professor/ ACE	4
5)	Professor / Dean	8
6)	Principal	16

Table 1

In calculating RA in case of each activity we consider the total number of persons for each Rank. Rank Analysis for the activities can be computed as below. In each and every activity specification total number of persons involved in each group represented by using delimiter comma(.) as per the order Principal, Professor/Dean, Associate Professor/ACE, Assistant Professor, Persons out of the College, Non-Teaching Staff.

Activity Name	Effort required for an Activity ( in value)	RA (Effort of all the persons involved)
	Total no. of persons	
ACP (1,1,0,0,0,0)	24	48
	2	
EN (0,1,0,1,0,1)	11	33
	3	
RRSE (0,0,0,1,0,2)	4	12
	3	
ES (0,1,0,1,0,1)	11	33
	3	
ASDS (0,0,0,1,0,1)	3	6
	2	
HTGP (0,0,0,1,0,2)	4	12
	3	
NRGP (0,0,0,1,0,2)	4	12
	3	
IS (0,0,2,1,0,0)	10	30
	3	
QPC (0,1,1,0,0,0)	12	24
	2	
QPP (1,1,2,1,0,1)	35	210
	6	
RASQP (0,0,0,1,0,2)	4	12
	3	
ASR (0,1,0,1,0,2)	12	48
	4	
ASV (0,1,2,2,10,2)	38	646
	17	
RP (1,1,2,1,0,0)	34	170
	5	
RD (0,1,2,1,0,0)	18	72
	4	
MMP (0,0,1,0,0,1)	5	10
	2	
PCPG (0,0,1,1,0,2)	7	28
	4	
IPC (0,0,1,0,0,1)	5	15
	3	
PDODG (0,0,0,1,0,1)	3	6
	2	

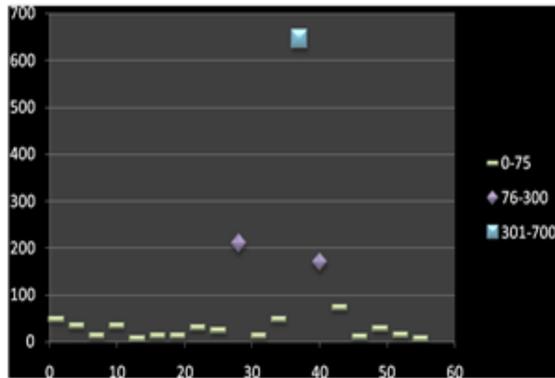
Table 2

After computing we can cluster the activities based on the final value. In this context we cluster entire activities into three clusters based on the range of values. An activity which is having high value means less confidential. As per the clustering used in this paper,

Cluster1: 0 to 75

Cluster 2: 76 to 300

Cluster 3: 301 to 700



### CONCLUSION

An Autonomous affiliation is a great representation for an educational institution to improve the organization and also get familiarity. For this two major branches should work continuously. Those are Administration branch and Examination branch. Each Autonomous educational institution has its own activities when compared with any university or any other college. These are management dependencies. To conduct these activities well, various designated persons should work together and to maintain confidentiality also. Whenever less number as possible and also sufficient persons work together enough to get confidentiality. The clustering of activities based on confidentiality represents whether a college is maintaining fully confidentiality or partial or less. The main intension of this paper is to know the activities list of an Autonomous Educational Institution Examination branch.

### FUTURE ENHANCEMENTS

In future the number of activities are going to be increased and also enhanced methods to be implemented for confidential and effective clustering.

### REFERENCES

[1] A. Sai Hanuman, Dr. A Vinaya Babu, et al. "Hybridization of Particle Swarm Optimization and Adaptive Differential Evolution for solving Data clustering Problems", Autosoft Journal,

Intelligent automation & Soft Computing, Published by MIT Press, (Under review, submitted in Sept 2010), Impact Factor 0.475.

[2] Sesham Anand, A. Sai Hanuman, et al. "Use of Data Mining Techniques in understanding Home Interview Surveys Employed for Travel Demand Estimation", International Conference DMIN 2008, World Congress in Computer Science, Las Vegas, USA .

[3] Rishi, O. P., and Neelam Chaplot. "Archetype of astrological prediction system about profession of any persons' using case based reasoning." Communication and Computational Intelligence (INCOCCI), 2010 International Conference on. IEEE, 2010.

[4] Chaplot, N., Dhyani, P. and Rishi, O.P., 2015, May. Astrological prediction for profession using classification techniques of artificial intelligence. In Computing, Communication & Automation (ICCCA), 2015 International Conference on (pp. 233-236). IEEE.

[5] Tsui, A. S. (2009), Editor's Introduction – Autonomy of Inquiry: Shaping the Future of Emerging Scientific Communities. Management and Organization Review, 5: 1–14. doi:10.1111/j.1740- 8784.2009.00143.x