



RAMCO INSTITUTE OF TECHNOLOGY

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Department of Artificial Intelligence and Data Science

Academic Year 2023 – 2024 (Even Semester)

Degree, Semester & Branch: B.Tech, VI & Artificial Intelligence and Data Science

Course Code & Title: CCS369 & Text and Speech Analysis

Name of the Faculty member (s): Mrs. B. Revathi

Innovative Practice Description

- **Unit / Topic:** Unit II / Feature Extraction in Text Classification
- **Course Outcome:** CO 2
- **Topic Learning Outcome:** TLO 12
- **Activity Chosen:** Flipped Classroom

Title of the concept: Feature Extraction in Text Classification

1.1. Justification for choosing the topic

selecting the appropriate feature extraction method is crucial for text classification tasks due to its impact on model performance, efficiency, and interpretability. Feature extraction techniques such as TF-IDF, word embeddings, and BoW help reduce dimensionality, handle sparse data, capture semantic information, and provide interpretable representations of text data. These methods enable efficient model training, facilitate the analysis of important features, and ensure compatibility with a wide range of machine learning algorithms. The choice of feature extraction technique should be guided by the characteristics of the text data, the specific requirements of the classification task, and the desired balance between performance and interpretability.

1.2 Flipped class

Flipped class is a pedagogical approach in which traditional content delivery moves to an individual learning process, and the group activity is transformed into a dynamic, interactive learning environment where the instructor just guides the learners to apply their creative thinking to provide a fruitful solution in the course content. It provides more benefits than traditional direct content delivery.

1.3 Benefits of flipped class

- It promotes **peer interaction** among students and **collaboration skills**
- It encourages bright students' engagement.
- It provides increased individual attention.
- It makes **independent learning** rather than teaching.

1.4 Procedure:

- To Enhance communication, listening, Self-confidence and problem-solving skills

2.1 Outcomes (At the end of the learning technique, the students will be able to)

- Apply Feature Extraction techniques for text classification

3. Description of learning materials

3.1 Text Material mode

I Posted a text material to students for getting a clear idea about Feature Extraction Techniques. It uploaded in Canvas Tool. I will provide the canvas link for this text material. Feature extraction in text classification involves converting raw text data into numerical or vector representations that machine learning algorithms can process. This transformation is essential because most machine learning algorithms require numerical input. The URL of the text material is given below.

<https://canvas.instructure.com/courses/8599928/files/folder/Unit-2>

- I will give important keywords in the study materials. Students can be viewed the Text mode study materials on the **canvas course website**
- Students can post their queries/doubts during the activity is going on. The instructor immediately responds to your queries related to a concept.
- The brainstorming activity of the flipped class will be conducted at C3L01.

4. Justification to form a group

A heterogeneous group (boys and girls) with four or five members will be formed. Each group formed by bright students, average students, and slow learners. My **class strength is 62 (Boys and Girls)**. I will form 12 heterogeneous groups

4. Plan for implementing Flipped class

5.1 Difficulties/Challenges

- Some students may struggle with accountability and may not complete assignments or review materials consistently.

5.2 Steps to be taken to avoid the problem.

- Keep track of students' progress on assignments and intervene early if you notice any signs of struggle. Offer support and guidance to help students get back on track.
- From the beginning of the course, communicate clearly about assignment deadlines, requirements, grading criteria, and consequences for late submissions or incomplete work. Make sure students understand what is expected of them.
- Time Duration: 45 minutes

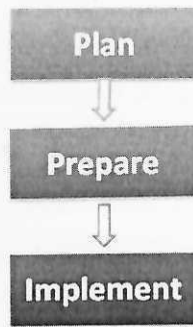


Figure 1: Steps of Flipped Class

1.4.1 Plan

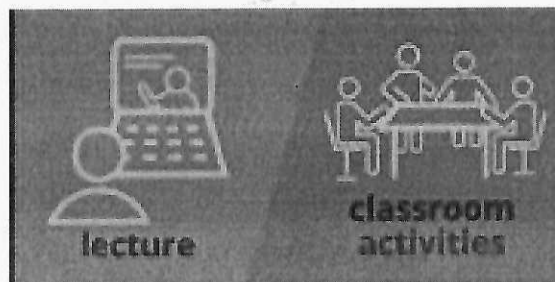
- Identify the topic for **independent study**.
- Write the objectives of the flipped class
- Create the **schedules for a flipped class** that contains the dates for posting material, class activity, and quiz. – Select the dates **before holiday or exam**.

1.4.2 Prepare:

- Prepare the Text Material for e-Learning Purpose

1.4.3 Implement

- Form a small group. A group may be **heterogeneous or homogeneous** based on the students' performance.
- Upload the learning materials such as video and text documents on the course website
- Give enough time (minimum 3 to 5 days) for students to study
- Post a quiz to find whether the students have the understood the study materials
- Monitor the class activity to ensure that each group is actively involved to provide the solutions.
- Make the group presentation for providing solutions.



Students can read assigned material (before class) and complete problem sets & preparing for quizzes/exams (after class)

2. Learning objectives

5.3 Assessment 1: Brainstorming (BS)

The prime goal of the Brainstorming method is used to develop ideas by students. **Students can freely propose their new ideas in their peer group.** Team members form a circle and discuss their ideas. Simultaneously, I will observe all the solution/idea after the sharing is completed. I will evaluate the solutions/ideas of individual students because an individual student will have the opportunity to share their ideas/solutions. I plan to assist the slow-learners to active participation and reduce the deadlock situation. Through this, students should be able to develop various skills like leadership, interpersonal skill and team, and time management skill.

5.4 Images/Screenshot:



Feedback of practice from students and other stakeholders:

Students were asked me to conduct such activities for forth coming classes.

Benefit of the practice: (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

By conducting this activity, Students engage actively with the material outside of class, often through videos or readings, allowing them to absorb foundational concepts at their own pace. They will also be able to reproduce the concepts in the exam. The students gave oral feedback that now they got a clear idea about Feature Extraction in Text Classification, and they asked to conduct more such activities like this.

References:

- ❖ <https://www.panopto.com/blog/7-unique-flipped-classroom-models-right/>
- ❖ <https://www.utrgv.edu/cte/resources-new/course-design/flipped-classrooms/index.htm>.

B. R. Aggarwal
Signature of Faculty Member

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