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Department of Computer Engineering

Academic Year (2023-24)

Innovative Teaching Learning Activity Details

SR. No.	Name of Activity	Coordinator	Type Of Activity			Date	Duration
			Curricular	Co-Corricular	Extra Curricula		
1	Crossword Puzzle	Dr. Mahesh	Curricular (NLP)	-	-	10/10/202	1 Hour
2	Research based study	Dr. Mahesh Maurya	Curricular (DL)	-	-	15/3/2024 even sem	1 Hour
3	Mind Mapping	Keerti Kharatmol	Curricular (ML)	-	-	2023-24 odd sem	1 Hour
4	Simulators and Tools used in Experiments : (practical Session)	Suman Bhujbal	Curricular (SE)	-	-	2023-24 odd sem	2 Hour
5	Crossword Puzzle (Theory Session)	Suman Bhujbal	Curricular (SPCC)			2023-24 odd sem	1 Hour
6	Keyword Search In Limited Time.	Dr. Sharmila Ponnoran.	Curricular (OOPM)	-	-	16/09/202 3 odd sem	30 Minutes
7	Seminar on selected topic from the syllabus.	Dr. Sharmila Ponnoran.	Curricular (OOPM)	-	-	18/09/202 3. odd sem	5mins/student
8	Network Application Design	Vaishali Bhusare	Curricular (CN)	-	-	2023-24 odd sem	1 Hour

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Department of Computer Engineering
2023-24(ODD Sem)

Activity : Crossword puzzle

Name of Faculty: Dr. Mahesh Maurya

Sub: Natural Language Processing

Class: B.E.Computer Engineering SEM:VII

Methodology followed: Powerpoint Presentation, Google meet, Google classroom
Difficulty faced: Students find difficulty in skills like reasoning, problem-solving and developing solutions.
New method identified: Crossword puzzle
Activity report: Crossword puzzles are given to students based on WordNet. Students had a Formed group of 3 to 4 students.
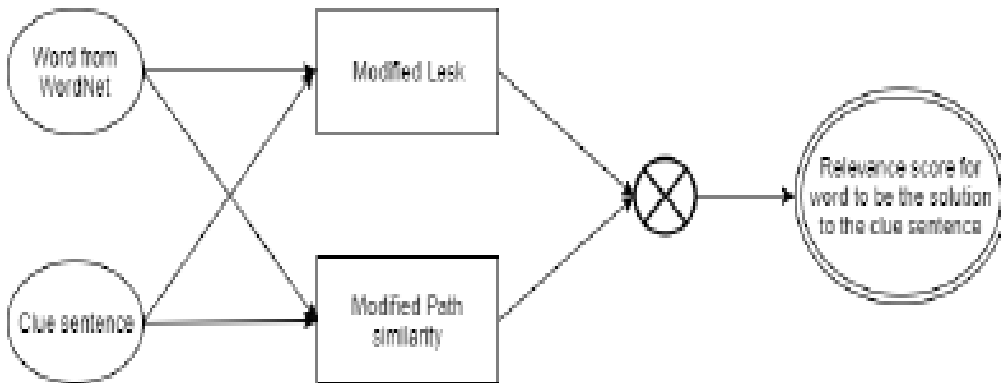

Fig. 1. Clue Solving Algorithm acting on a word in WordNet

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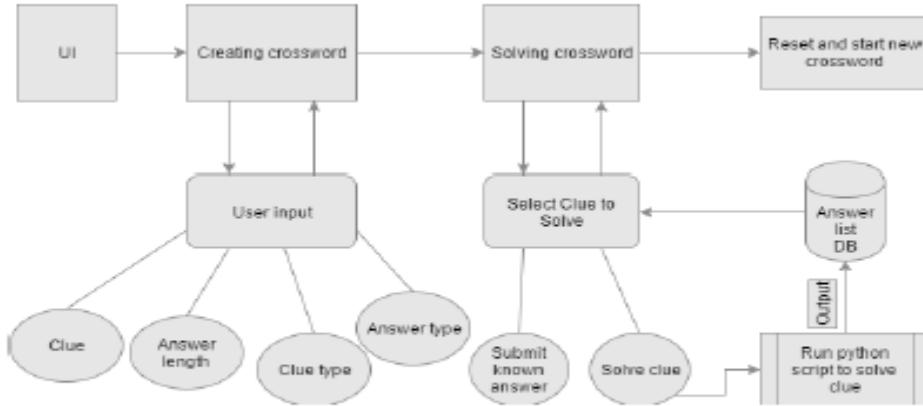
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Fig. 2. Working of the crossword solving assistant

WordNet Limitations			
Thesaurus	Pop Culture	Unpopular	Colloquial
207	58	31	25

1.77% of the clues unsolved and 0.5% of the total clues.

Rank of correct solution in output list			
1st	2nd - 5th	6th - 50th	Does not appear
658	168	56	339

Implementation Limitations	
Compound Words	Anagrams
12	6

Outcome: Students learned how to do collaborative study and problem solving

Department of Computer Engineering
2023-24(Even Sem)

Name of Faculty: Dr. Mahesh Maurya

Sub: Deep Learning

Class: B.E.Computer Engineering SEM:VIII

Methodology followed: Powerpoint Presentation, Google meet, Google classroom, **Difficulty faced:** Students find difficulty in skills like reasoning, problem-solving and developing solutions.

New method identified: Research Paper Based

Activity report: Students have to select one research paper and go through it and write summary of paper of following points:

i. Proposed architecture
ii. Implementation
iii. Results
iv. Conclusion and future research
Sample:
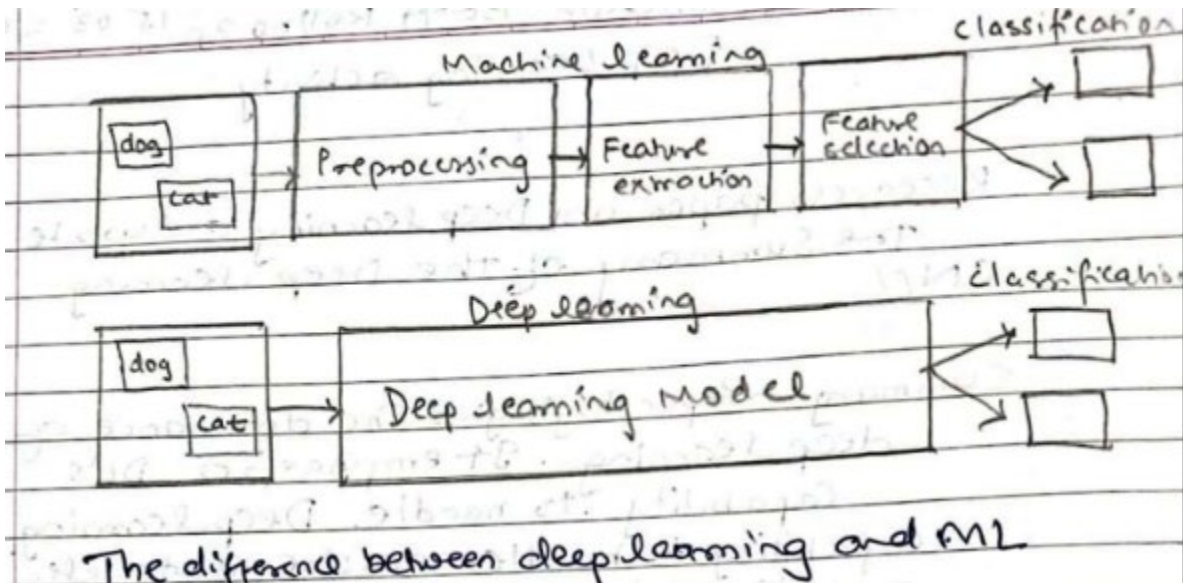
The difference between deep learning and ML

IEEE Access

A Deep Learning Approach for Intrusion Detection Using Recurrent Neural Networks

CHUANLONG YIN[ID], YUEFEI ZHU, JINLONG FEI, AND XINZHENG HE

State Key Laboratory of Mathematical Engineering and Advanced Computing, Zhengzhou 450001, China

Corresponding author: Chuanlong Yin (dragonyinc1@163.com)

ABSTRACT Intrusion detection plays an important role in ensuring information security, and the key technology is to accurately identify various attacks in the network. In this paper, we explore how to model an intrusion detection system based on deep learning, and we propose a deep learning approach for intrusion detection using recurrent neural networks (RNN-IDS). Moreover, we study the performance of the model in binary classification and multiclass classification, and the number of neurons and different learning rate impacts on the performance of the proposed model. We compare it with those of J48, artificial neural network, random forest, support vector machine, and other machine learning methods proposed by previous researchers on the benchmark data set. The experimental results show that RNN-IDS is very suitable for modeling a classification model with high accuracy and that its performance is superior to that of traditional machine learning classification methods in both binary and multiclass classification. The RNN-IDS model improves the accuracy of the intrusion detection and provides a new research method for intrusion detection.

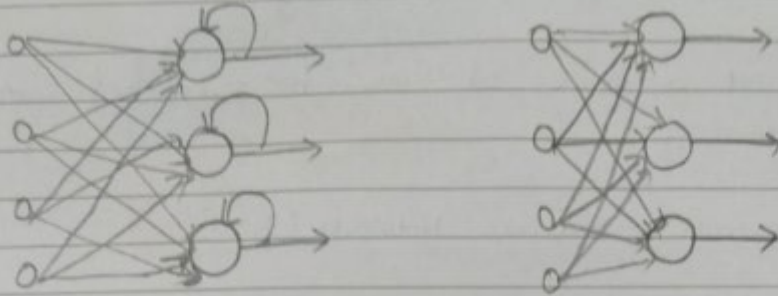**INDEX TERMS** Recurrent neural networks, RNN-IDS, intrusion detection, deep learning, machine learning.

(a) Recurrent Neural Network   (b) Feed-Forward Neural Network

In case of ANN, that do not have looping nodes are called feed-forward neural networks. Because all the information is only passed forward. This networks are appropriate for image classification tasks, for example, where input and output are independent.

Generative Adversarial Networks

An overview

Generative adversarial networks (GANs) provide a way to learn deep representations without extensively annotated training data. They achieve this by deriving backpropagation signals through a competitive process involving a pair of networks. The representations that can be learned by GANs may be used in a variety of applications, including image synthesis, semantic image editing, style transfer, image superresolution, and classification. The aim of this review article is to provide an overview of GANs for the signal processing community, drawing on familiar analogies and concepts where possible. In addition to identifying different methods for training and constructing GANs, we also point to remaining challenges in their theory and application.

Introduction

GANs are an emerging technique for both semisupervised and unsupervised learning. They achieve this through implicitly modeling high-dimensional distributions of data. Proposed in 2014 [1], they can be characterized by training a pair of networks in competition with each other. A common analogy, apt for visual data, is to think of one network as an art forger and the other as an art expert. The forger, known in the GAN lit

composed of ConvNets in place of multi-layer perceptrons

(vii) Advantages of GAN :-

1] High-quality results

2] Versatility

(viii) Disadvantages of GAN :-

1] Training instability.

2] High computational cost

3] Overfitting

Outcome: Students learned research based study of Deep learning and understood various research based aspects.

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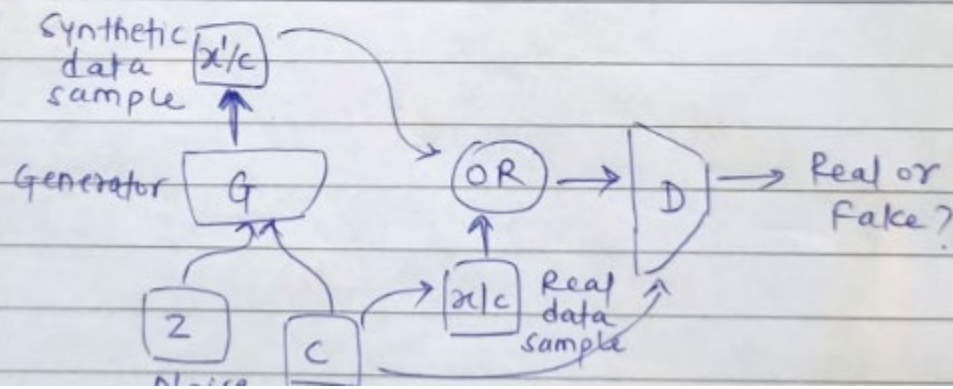MithBunder Road, Near Hume Pipe,Kopri, Thane (E)- 400603.

Department of Computer Engineering
A.Y. 2023-24 Odd Sem

Name of Faculty: Prof.Keerti Kharatmol

Sub: Machine Learning

Class: B.E. Computer Engineering SEM: VII

Methodology followed: Class Room Teaching, Written Assignments, Remedial lectures

Difficulty faced: Students do not get the exact understanding of the topic through regular classroom teachings and basic written subject assignments.

New method identified: Mind Mapping

Activity Report: A mind map is a diagram used to visually organize information. A mind map is hierarchical and shows relationships among pieces of the whole. It is often created around a single concept, drawn as an image in the center of a blank page, to which associated representations of ideas such as images, words and parts of words are added. Major ideas are connected directly to the central concept, and other ideas branch out from those major ideas.Mind mapping is an effective means to take notes and brainstorm essay topics. A mind map involves writing down a central theme and thinking of new and related ideas which radiate out from the center

Outcome: This activity helped to understand the concept better than regular assignments
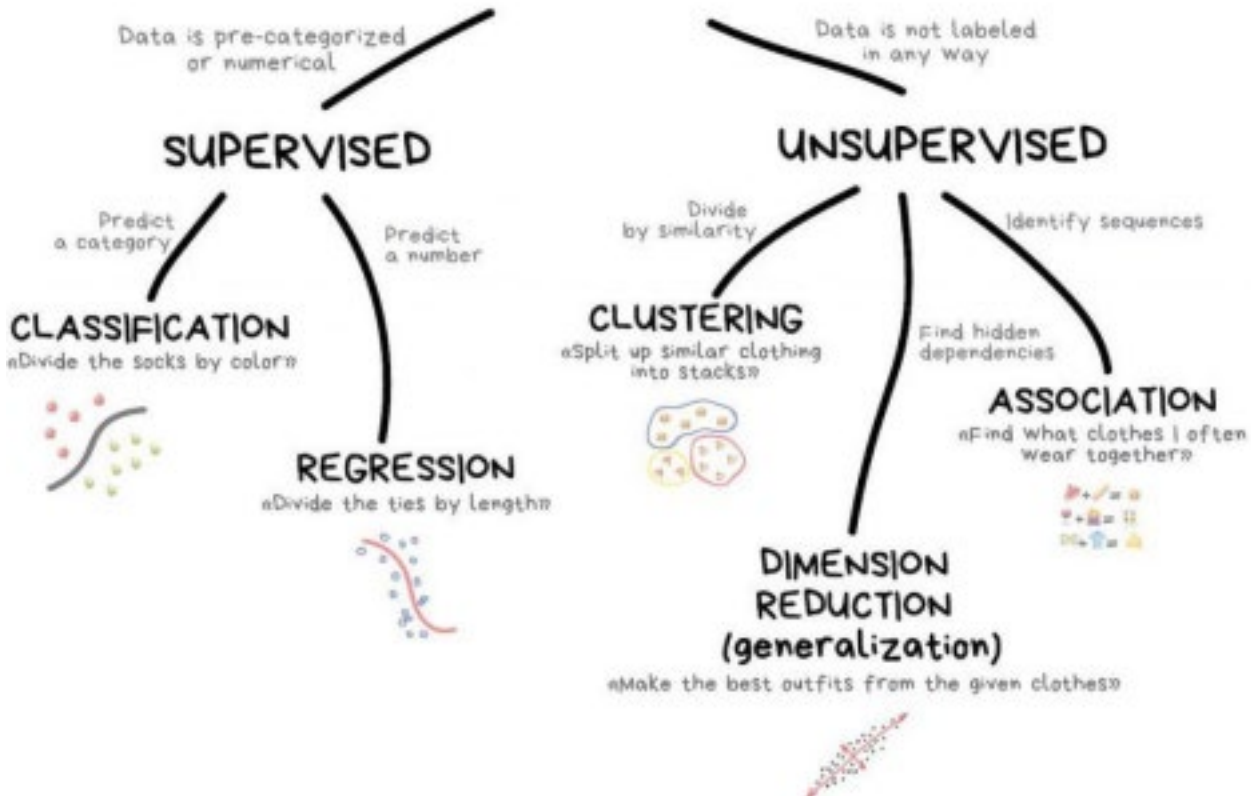Types of Machine Learning

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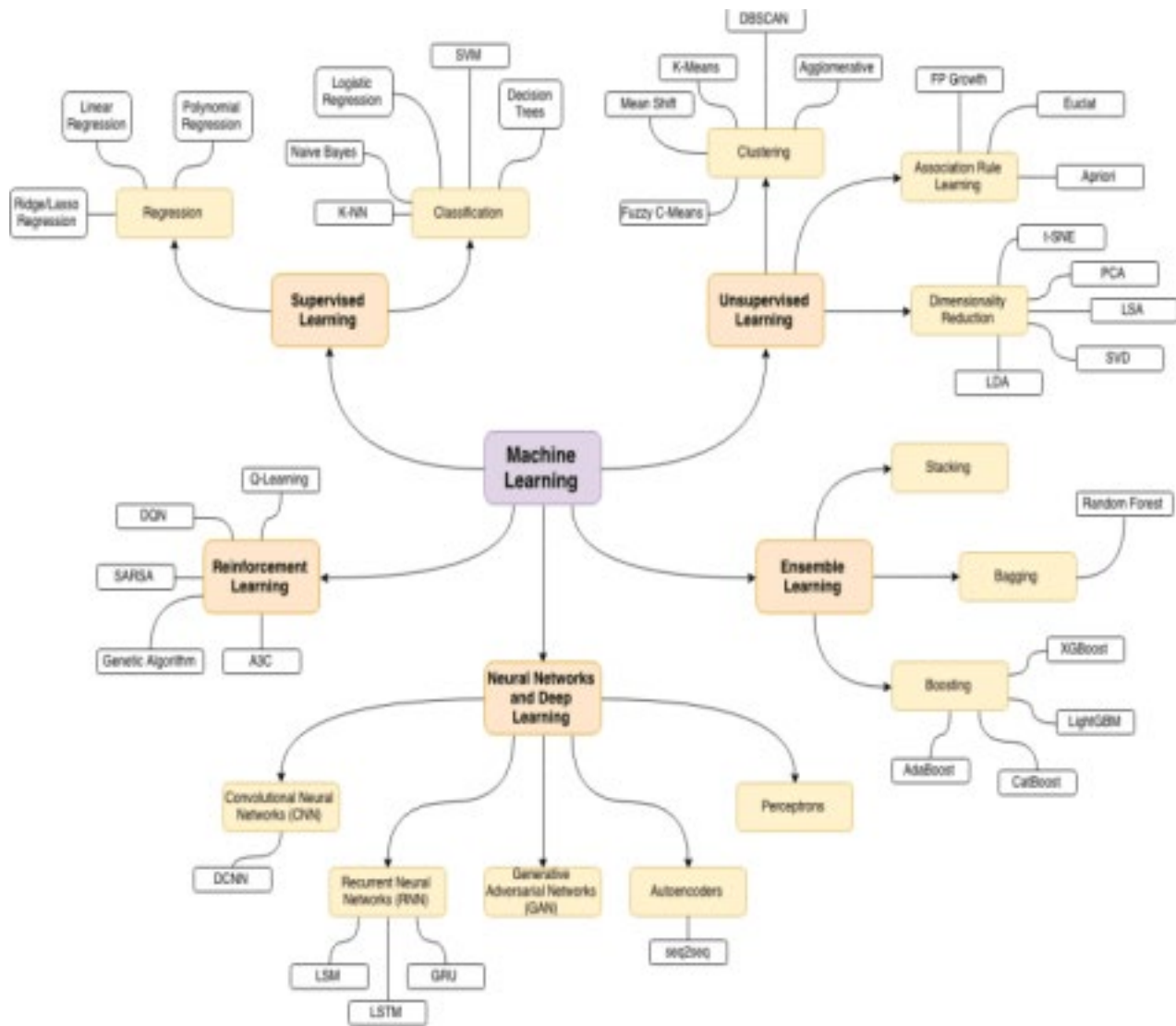MithBunder Road, Near Hume Pipe,Kopri, Thane (E)- 400603.

Types of Machine Learning

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Department of Computer Engineering
A.Y. 2023-24 Even Sem

Name of Faculty: Suman Bhujbal

Sub: System Programming and Compiler Construction

Class: T.E . Computer Engineering SEM: VI , 2023-24

Methodology followed: Class Room Teaching, Written Assignments, Remedial lectures

New method identified: Crossword Puzzle (Theory Session)

Activity Report: Crossword puzzles based on a particular topic are prepared . It is Presented on a slide. Students will solve given problems in the notebook.
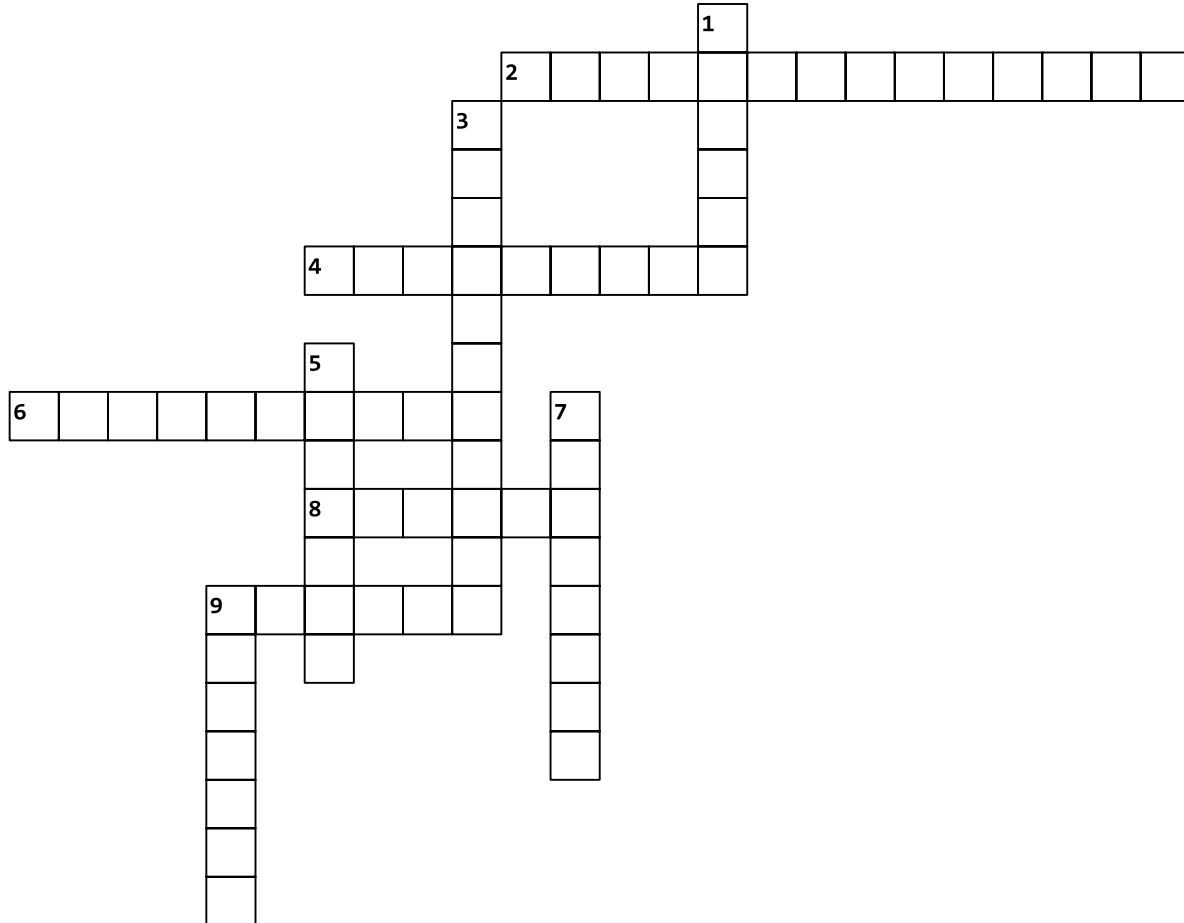
Introduction to system Software

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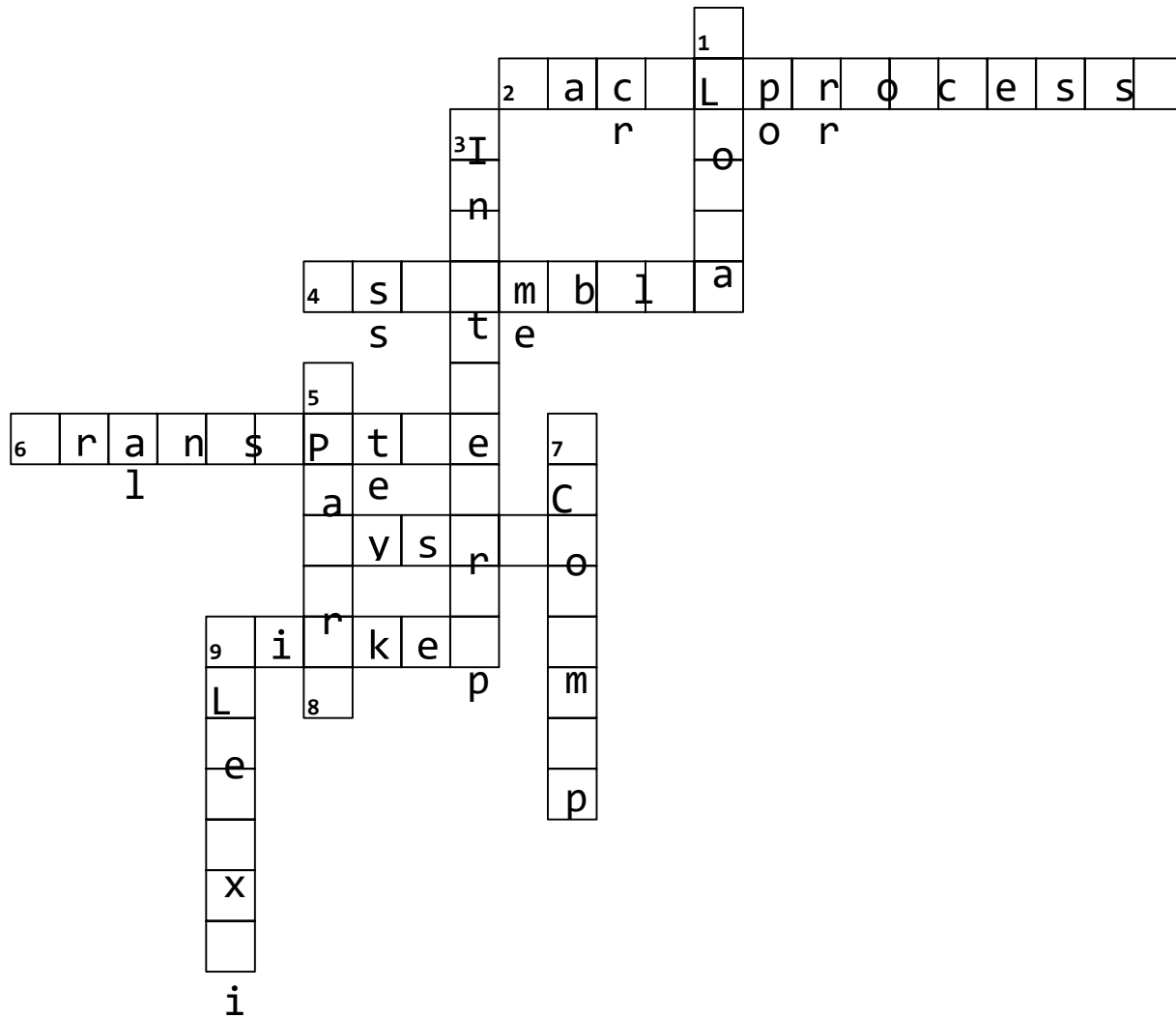MithBunder Road, Near Hume Pipe,Kopri, Thane (E)- 400603.

Across

2. A macro processor is a program that copies a stream of text from one place to another

4. Assembly language to Object code conversion.

6. Converts one form of language into another form.

8. _____Program is used to built system software.

9. Merges seperate object files into a single file.

Down

1. Placing Object Code into main memory.

3. Translates Source Program into an Intermediate Code

5. _____is also known as Syntax analysis.

7. Translates HLL to Object Code.

9. _____analyzer generates Tokens from given Character Stream.

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1/5/24, 8:00 PM   Introduction to system Software - Crossword Labs

Introduction to system Software

Across

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Outcome: Students learned how to do collaborative study and problem solving. This activityhelped to memorize and understand the concept better than regular assignments.

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Department of Computer Engineering

Innovative Teaching and Learning

Name of Faculty: Suman Bhujbal

Sub: Software Engineering

Class: T.E . Computer Engineering SEM: V , 2023-24

Methodology followed: Class Room Teaching, Written Assignments, Remedial lectures

New method identified: 1) Simulators and Tools used in Experiments : (practical Session)

　　　　　　　　　　2) Crossword Puzzle (Theory Session)

Activity Report: Crossword puzzles based on a particular topic are prepared . It is Presented on a slide. Students will solve given problems in the notebook.

Outcome: Students learned how to do collaborative study and problem solving. This activity helped to memorize and understand the concept better than regular assignments.

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Software Puzzle

Across

3. _____ Model is a traditional software development approach

4. _____coupling is the complete data structure is passed from one module to another module

5. _____Testing is a testing type in which different modules or components of a software application are tested

6. _____Testing is a software testing type in which individual units/components are tested

Down

1. _____is a measure of the degree to which the elements of the module are functionally related.

2. _____Controlling is a system that manages changes to source code over time

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Software Puzzle

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Simulators and Tools used in Experiments : TORTOISE SVN Software is used in Experiment number 9.

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Department of Computer Engineering
A.Y. 2023-24 Odd Sem

Innovative Teaching and Learning

Sem III OOPM ACTIVITY

Activity Name : Seminar on selected topic from the syllabus.

Date of Conduction: 18/09/2023.
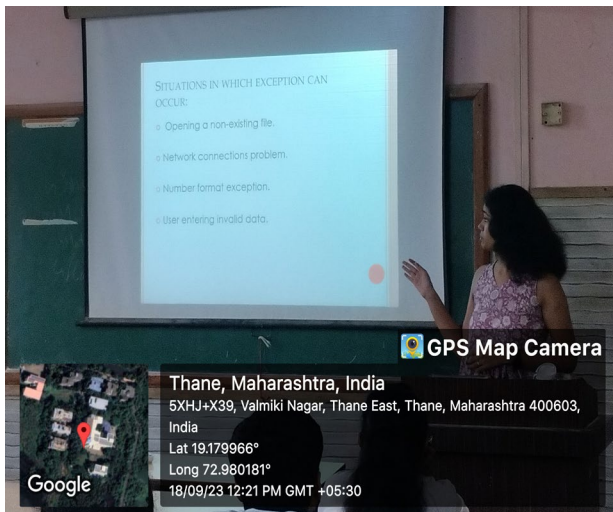
Time: 11 am to 6pm.

Period : 4-5 min per student.

Students Attended: SE DIV A and B. Sem III

Name of Faculty : Dr. Sharmila Ponnoran.

Description:

• To Develop confidence and reduce stage fearing in students.

• To enhance the argument building skills and critical evaluation skill.

• To deepen the understanding of the topic being studied.

• To prepare data in a presentable way.
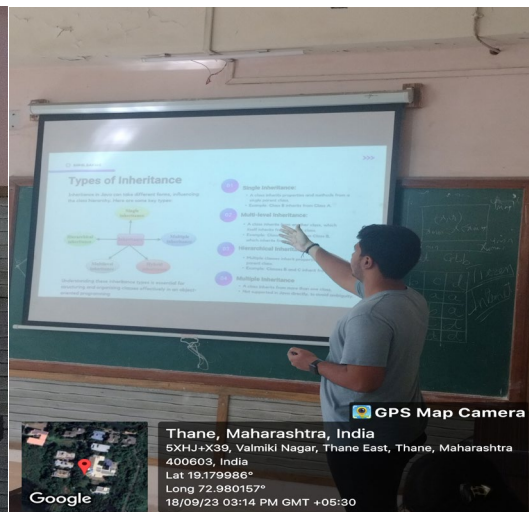
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Outcome: Students presented the topic with prepared ppt. Students gained confidence in presentation. Understanding of subject with various types of explanation led to revision of subject.

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Department of Computer Engineering

A.Y. 2023-24 Sem III

Innovative Teaching and Learning

OOPM ACTIVITY

Activity Name : KEYWORD SEARCH IN LIMITED TIME.

Date of Conduction: 16/09/2023.

Time: 4pm.

Period : 30 min.

Students Attended: SE DIV A and B. Sem III

Name of Faculty : Dr. Sharmila Ponnoran.

Description:

- Each student were given a printed sheet which had words related to java programming language in jumbled order.
- The main objective of this activity is to locate the provided list of keywords on the grid.
- Words were placed horizontally,vertically, diagonally and inverted in the grid.
- Once found the word in the grid, either strike through or circle them.
- Finding all the words means puzzle is solved.

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Java Key Words

```
T  L  A  S  S  E  R  T  T  U  U  E  V  G  D  N  R  U  T  E  R  T  I  C
R  P  E  S  N  M  S  P  C  P  R  I  V  A  T  E  I  G  A  F  F  H  I  X
R  P  A  A  C  U  D  C  A  S  D  R  W  H  I  L  E  Z  R  M  I  X  U  N
K  L  K  N  P  A  E  U  R  E  C  O  N  T  I  N  U  E  U  K  A  N  L  B
C  W  U  E  T  W  Z  V  T  A  E  E  A  T  R  A  N  S  I  E  N  T  A  D
Y     R  B  R  R  I  G  S  D  Y  T  S  W  D  F  P  A  C  K  A  G  E  L
K  D  T  E  O  O  N  R  B  B  L  M  G  L  G  O     W  G  F  O  T  Z  V
W  I  W  V  H  I  O  T  A  C  L  M  F  S  E  E  V  X  K     R  H  U  P
A  O  O  Z  S  U  R  B  A  Z  A  E  O  B  A  C  T  R  O  P  M  I  Y  R
W  V  G     H  H  H  C  Z  U  N  S  L  N  E  N  N  H  I  U  Z  F  W  O
Z  S  R  Y  N  I  C  I  T  I  I  X  E  E  V  A  I  A  C  Z  D  I  B  T
W  T  Z  S  S  R  N  T  H  A  F  B  T  M  I  T  N  E  E  T  B  K  V  E
X     H  E  D  K  Y  A  M  Z  O  K  M  G  T  S  T  T  N  L  A  P  D  C
I  O  Y  R  N  N  S  T  O     X  L  H     A  N  E  Y  H  Y  O  C  Z  T
M  Z  R  A  O  U  E  S  F  D     M  F  E  N  I  R  I  R  R  P  O  N  E
P  Z  S  D  O  W  M  T  P  D  S  Y  E  N     T  F  N  Y  T  O  B  B  D
L  H  R     P  R  S  V  X  U     D  E  S  M  K  A  H  Y  G     W  T  T
E  L  I  T  A  L  O  V  D  E  H  W  K  P  I  I  C  K     G  Y     L  F
M  B  V  F  S  R  M  U  I  L  R  G  A  E  L  H  E  L  N  I     P  U  O
E  Z  Y     W  C  K  D  R  L  W  E  H  L  M  T  O  U  W  X  P  A  R
N  N     T  F  H  I  M  G  I  A  A  R  G  G  B  L  U  S  W  Y  C  F  N
T  D  T  N  E  G  X  T  R  F  S  H  B  I  Y  Y  U  K  O  T  D  K  E  W
S  G  P  U  B  L  I  C  C  E  L  D  C  I  R  M  S  O  N  H  A  F  D  R
A  Z  I  E  X  I  R  M  O  H  R  C  O  N  S  T  M  I  D  X  G  K  K  R
```

while	super	native	float	const	volatile
long	finally	class	void	static	interface
final	char	try	short	int	extends
catch	transient	return	instanceof	enum	case
throws	public	import	else	byte	throw
protected	implements	double	break	this	private
if	do	boolean	synchronized	package	default
assert	switch	new	for	continue	abstract

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OOPM Activity

Name : Nirod. Rajeev. Walke
Roll No. : 42
Class and Div : SE B Comps
Date : 16\9\23

Java Key Words

| while | super | native | float | const | volatile |
long	finally	class	void	static	interface
final	char	try	short	int	extends
catch	transient	return	instanceof	enum	case
throws	public	import	else	byte	throw
protected	implements	double	break	this	private
if	do	boolean	synchronized	package	default
assert	switch	new	for	continue	abstract

Checked By : Dr.Sharmila Rajesh Ponnoran

48 v.good

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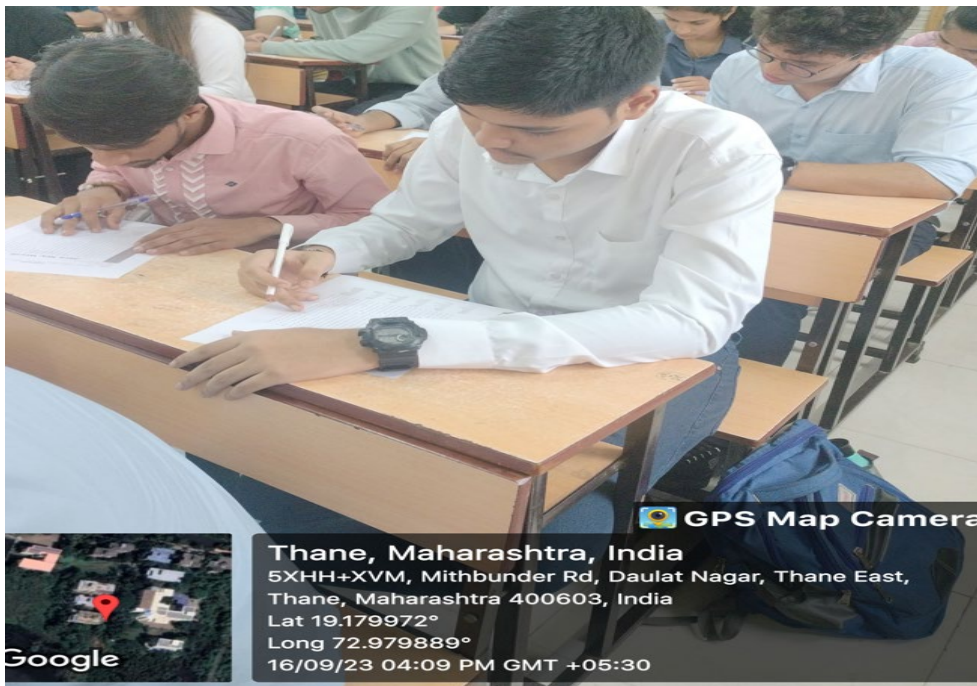
Outcome: Students had a fun oriented session. Memorization of Java keywords has improved. Review of the subject knowledge. Their problem solving skill improved.

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Department of Computer Engineering
A.Y. 2023-24 (ODD SEM)

Name of Faculty: Prof.Vaishali Bhusari

Sub: Computer Network

Class: T.E. Computer Engineering

SEM: V

Methodology followed: Class Room Teaching, Written Assignments, Remedial lectures

Difficulty faced: Students do not get the exact understanding of the topic through regular classroom teachings and basic written subject assignments.

New method identified: Network Application Design

Activity Report-Class was divided into groups of 4-5 students. Each team using asked to design one innovative application using client server or peer to peer architecture. Also students were asked to identify the transport layer protocol according to services required. At the end students were asked to give presentation on the same.

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Students involved in the activity

Students presenting the application

Outcome: This activity helped to understand the concept better than regular assignments