



ESTD. 2001

**PRATHYUSHA**  
**ENGINEERING COLLEGE**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**INNOVATIONS**  
**BY THE FACULTY IN**  
**TEACHING AND LEARNING**

# **1. LEARNING WITH LIVE DEMONSTRATION OF COMPUTER HARDWARE**

# PRATHYUSHA ENGINEERING COLLEGE

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### LEARNING WITH LIVE DEMONSTRATION OF COMPUTER HARDWARE



Computer hardware includes the physical parts of a computer, such as the case, central processing unit (CPU), random access memory (RAM), monitor, mouse, keyboard, computer data storage, graphics card, sound card, speakers and motherboard.

#### CASE:



A **computer case**, also known as a **computer chassis**, is the enclosure that contains most of the hardware of a personal computer. The components housed inside the case (such as the CPU, motherboard, memory, mass storage devices, power supply unit and various expansion cards) are referred as the internal hardware, while hardware outside the case (typically cable-linked or plug-and-play devices such as the display, speakers, keyboard, mouse and USB flash drives) are known as peripherals.

## CPU(Central Processing Unit):



A **central processing unit (CPU)**—also called a **central processor** or **main processor**—is the most important processor in a given computer. Its electronic circuitry executes instructions of a computer program, such as arithmetic, logic, controlling, and input/output (I/O) operations. This role contrasts with that of external components, such as main memory and I/O circuitry, and specialized coprocessors such as graphics processing units (GPUs).

## RAM(Random Access Memory) :



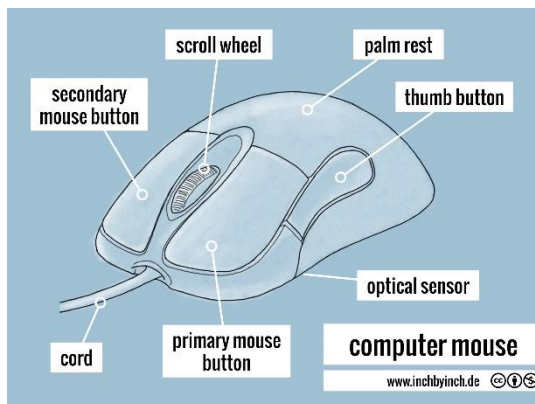
**Random-access memory (RAM)** is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory, in contrast with other direct-access data storage media (such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory), where the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.

## MONITOR:



A **computer monitor** is an output device that displays information in pictorial or textual form. A monitor comprises a visual display, support electronics, power supply, housing, electrical connectors, and external user controls. The display in modern monitors is typically an LCD with LED backlight, having by the 2010s replaced CCFL backlit LCDs. Before the mid-2000s,<sup>[1]</sup> most monitors used a CRT. Monitors are connected to the computer via DisplayPort, HDMI, USB-C, DVI, VGA, or other proprietary connectors and signals.

#### MOUSE:



A computer mouse (plural **mice**, also **mouses**) is a hand-held pointing device that detects two-dimensional motion relative to a surface. This motion is typically translated into the motion of the pointer (called a cursor) on a display, which allows a smooth control of the graphical user interface of a computer.

## KEYBOARD:



Keyboard keys (buttons) typically have a set of characters engraved or printed on them, and each press of a key typically corresponds to a single written symbol. However, producing some symbols may require pressing and holding several keys simultaneously or in sequence.<sup>[3]</sup> While most keys produce characters (letters, numbers or symbols), other keys (such as the escape key) can prompt the computer to execute system commands. In a modern computer, the interpretation of key presses is generally left to the software: the information sent to the computer, the scan code, tells it only which physical key (or keys) was pressed or released.

## MOTHERBOARD:



A **motherboard** (also called **mainboard**, **main circuit board**, **MB**, **mboard**, **backplane board**, **base board**, **system board**, **mobo**; or in Apple computers **logic board**) is the main printed circuit board (PCB) in general-purpose computers and other expandable systems. It holds and allows communication between many of the crucial electronic components of a system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals.

# 2. ONLINE COURSE

**PRATHYUSHA ENGINEERING COLLEGE**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**NPTEL SWAYAM**

**ACADEMIC YEAR: 2022-2023**

<b>S.No</b>	<b>Course Name</b>	<b>Name</b>	<b>YEAR</b>	<b>Certificate Type</b>	<b>Timeline</b>
1	Problem Solving Through Programming In C	PRANAW O	II	Elite+Silver	Jul-Oct 2022
2	Problem Solving Through Programming In C	PRAVEEN A	II	Elite	Jul-Oct 2022
3	The Joy of Computing using Python	Dhanalakshmi G	III	Elite	Jul-Oct 2022
4	Problem Solving Through Programming In C	Dhinakaran T	III	Elite	Jul-Oct 2023
5	Enhancing Soft Skills and Personality	R Gokul	III	Elite	Feb-Apr-2023
6	Foundation of Cloud IoT Edge ML	Lokesh K	III	Elite	Jan-Apr 2023
7	Python for Data Science	Harisha V	II	Elite	Jul-Aug 2022





Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

**PRANAW O**

for successfully completing the course



## Problem Solving Through Programming in C

with a consolidated score of **76** %

Online Assignments	24.63/25	Programming Assignment	25/25	Proctored Exam	26.5/50
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Total number of candidates certified in this course: **2015**

Jul-Oct 2022  
(12 week course)

**Prof. Debjani Chakraborty**  
Coordinator, NPTEL  
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL22CS101S44470347

To validate the certificate



No. of credits recommended: 3 or 4



Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

**PRAVEEN A**

for successfully completing the course

## Problem Solving Through Programming in C

with a consolidated score of **70** %

Online Assignments	24.69/25	Programming Assignment	25/25	Proctored Exam	20/50
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Total number of candidates certified in this course: **2015**

Jul-Oct 2022  
(12 week course)

**Prof. Debjani Chakraborty**  
Coordinator, NPTEL  
IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL22CS101S34470473

To validate the certificate



No. of credits recommended: 3 or 4



Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

**DHANA LAKSHMI G**

for successfully completing the course

## The Joy of Computing using Python

with a consolidated score of **73** %

Online Assignments	24.72/25	Programming Assignment	25/25	Proctored Exam	23/50
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Total number of candidates certified in this course: **9957**

**Prof. Devendra Jalihal**  
Chairperson,  
Centre for Outreach and Digital Education, IITM

Jul-Oct 2022  
(12 week course)

**Prof. Andrew Thangaraj**  
NPTEL, Coordinator  
IIT Madras



Indian Institute of Technology Madras



Roll No: NPTEL22CS122S64470653

To validate the certificate



No. of credits recommended: 3 or 4



Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

**DHINAKARAN T**

for successfully completing the course

## Problem Solving Through Programming in C

with a consolidated score of **70** %

Online Assignments	25/25	Programming Assignment	25/25	Proctored Exam	20/50
--------------------	-------	------------------------	-------	----------------	-------

Total number of candidates certified in this course: **2015**

Jul-Oct 2022  
(12 week course)

**Prof. Debjani Chakraborty**  
Coordinator, NPTEL  
IIT Kharagpur



Elite

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**R GOKUL**  
for successfully completing the course

## Enhancing Soft Skills and Personality

with a consolidated score of **64** %

Online Assignments	23.88/25	Proctored Exam	40.5/75
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Total number of candidates certified in this course: 12752

**Prof. B. V. Ratish Kumar**  
Chairman, Centre for Continuing Education  
IIT Kanpur

Feb-Apr 2023  
(8 week course)

**Prof. Satyaki Roy**  
NPTEL Coordinator  
IIT Kanpur



Indian Institute of Technology Kanpur



Roll No: NPTEL23HS30S13347480

To validate the certificate



No. of credits recommended: 2 or 3



**Elite**

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to  
**LOKESH K**  
for successfully completing the course

## Foundation of Cloud IoT Edge ML

with a consolidated score of **64** %

Online Assignments	23.75/25	Proctored Exam	39.8/75
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Total number of candidates certified in this course: **1649**

**Prof. B. V. Ratish Kumar**  
Chairman, Centre for Continuing Education  
IIT Kanpur

**Feb-Apr 2023**  
**(8 week course)**

**Prof. Satyaki Roy**  
NPTEL Coordinator  
IIT Kanpur



Indian Institute of Technology Kanpur



Roll No: NPTEL23CS65S34820258

To validate the certificate



No. of credits recommended: 2 or 3



**Elite**

# NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to

**HARISHA V**

for successfully completing the course

## Python for Data Science

with a consolidated score of **69** %

Online Assignments	23.25/25	Programming Assignment	25/25	Proctored Exam	20.67/50
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Total number of candidates certified in this course: **3991**

**Prof. Devendra Jalihal**

Chairperson,  
Centre for Outreach and Digital Education, IITM

Jul-Aug 2022

(4 week course)

**Prof. Andrew Thangaraj**

NPTEL, Coordinator  
IIT Madras



Indian Institute of Technology Madras



Roll No: NPTEL22CS74S13070291

To validate the certificate



No. of credits recommended: 1 or 2

# **3. LEARNING BY INDUSTRIAL VISIT**



<b>S NO</b>	<b>NAME OF THE COMPANY VISITED</b>	<b>VENUE</b>	<b>YEAR OF BENEFITTED STUDENT</b>	<b>DATE OF VISIT</b>
1	MONOLITH SOLUTIONS	Neela Towers, Ashok nagar, Chennai - 83	III	6.9.22 & 7.9.22
2	IMARTICUS LEARNING	East West Centre, Nelson Manickam road, Chennai - 29	IV	9.9.22
3	ICAT DESIGN & MEDIA	Santhome High Road, Mylapore, Chennai - 4	IV	15.9.22
4	GUVI GEEK NETWORK	IITM research park, module #9, D block, Tharamani, Chennai - 113	II	22.9.22 & 23.9.22
5	U R RAO SATELLITE CENTER	Old Airport road, Vimanapura, Bangaluru, Karnataka - 560017	III	23.02.23
6	IMAGE CREATIVE PVT LTD	Arcot road, Vadapalani, Chennai - 26	II	21.04.23 & 13.05.23
7	INTEGRAL COACH FACTORY	Lakshmipuram, Perambur, Chennai - 38	I	27th JUNE, 4th & 11th JULY 2023

**4. TEACHING THROUGH  
COLLABORATION (GROUP  
DISCUSSIONS)**

# PRATHYUSHA ENGINEERING COLLEGE

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**Academic Year:2022-2023**

**Year/Sem:II/IV**

**Subject Code/Name:CS3491/Artificial Intelligence And Machine Learning**

### TEACHING THROUGH COLLABORATION (GROUP DISCUSSION)

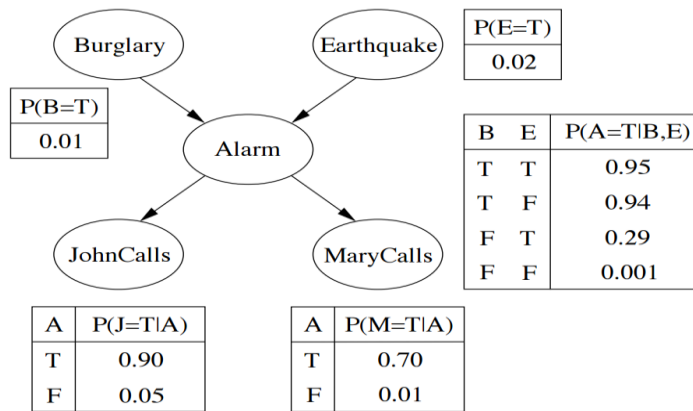
Students have divided into 10 groups with 6 members in a group and had a group discussion on the following concept:

- Bayesian Networks
- Supervised Learning
- Unsupervised Learning
- Neural Networks

#### **BAYESIAN NETWORKS:**

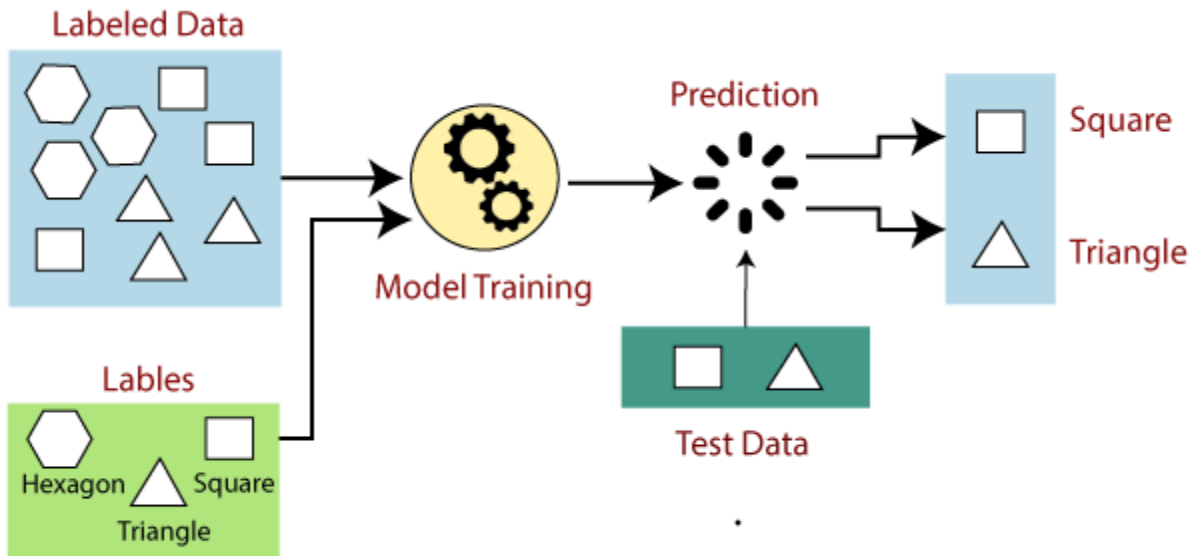
"A Bayesian network is a probabilistic graphical model which represents a set of variables and their conditional dependencies using a directed acyclic graph."

**Example:** Harry installed a new burglar alarm at his home to detect burglary. The alarm reliably responds at detecting a burglary but also responds for minor earthquakes. Harry has two neighbours John and Mary, who have taken a responsibility to inform Harry at work when they hear the alarm. John always calls Harry when he hears the alarm, but sometimes he got confused with the phone ringing and calls at that time too. On the other hand, Mary likes to listen to high music, so sometimes she misses to hear the alarm. Here we would like to compute the probability of Burglary Alarm.



## SUPERVISED LEARNING:

Supervised learning is the types of machine learning in which machines are trained using well "labelled" training data, and on basis of that data, machines predict the output. The labelled data means some input data is already tagged with the correct output.



## 1. Regression

Regression algorithms are used if there is a relationship between the input variable and the output variable.

## 2. Classification

Classification algorithms are used when the output variable is categorical, which means there are two classes such as Yes-No, Male-Female, True-false, etc.

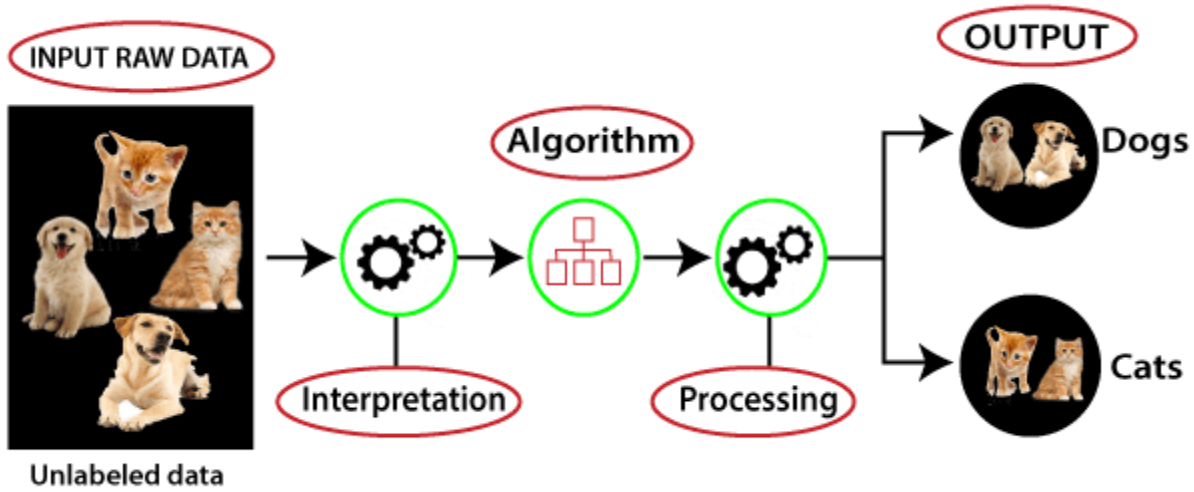
## UNSUPERVISED LEARNING:

Unsupervised learning is a type of machine learning in which models are trained using unlabeled dataset and are allowed to act on that data without any supervision.



## Working of Unsupervised Learning

Working of unsupervised learning can be understood by the below diagram:



## NEURAL NETWORKS:

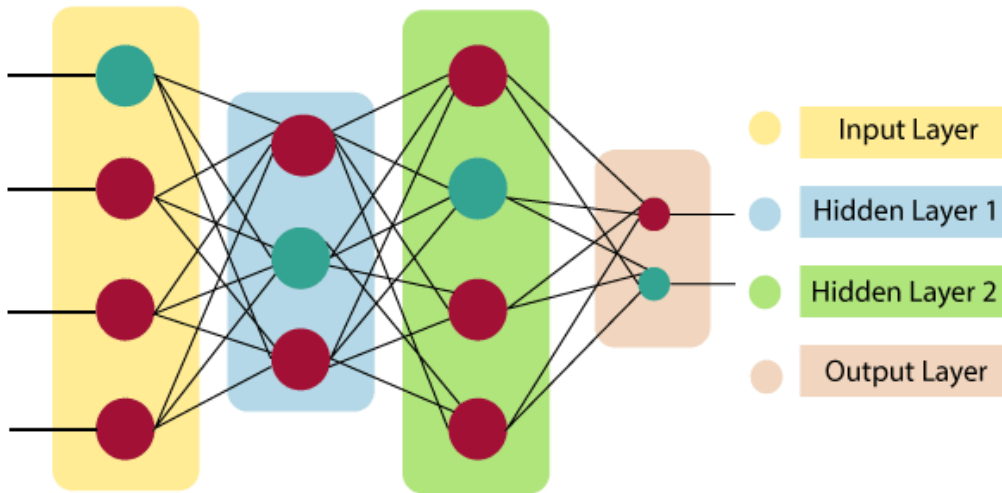
Artificial Neural Network Tutorial provides basic and advanced concepts of ANNs. Our Artificial Neural Network tutorial is developed for beginners as well as professions.



The term "Artificial neural network" refers to a biologically inspired sub-field of artificial intelligence modeled after the brain. An Artificial neural network is usually a computational network based on biological neural networks that construct the structure of the human brain. Similar to a human brain has neurons interconnected to each other, artificial neural networks also have neurons that are linked to each other in various layers of the networks. These neurons are known as nodes.

Artificial neural network tutorial covers all the aspects related to the artificial neural network. In this tutorial, we will discuss ANNs, Adaptive resonance theory, Kohonen self-organizing map, Building blocks, unsupervised learning, Genetic algorithm, etc.

Artificial Neural Network primarily consists of three layers:



### **Input Layer:**

As the name suggests, it accepts inputs in several different formats provided by the programmer.

### **Hidden Layer:**

The hidden layer presents in-between input and output layers. It performs all the calculations to find hidden features and patterns.

### **Output Layer:**

The input goes through a series of transformations using the hidden layer, which finally results in output that is conveyed using this layer.

The artificial neural network takes input and computes the weighted sum of the inputs and includes a bias. This computation is represented in the form of a transfer function.

$$\sum_{i=1}^n W_i * X_i + b$$

It determines weighted total is passed as an input to an activation function to produce the output. Activation functions choose whether a node should fire or not. Only those who are fired make it to the output layer. There are distinctive activation functions available that can be applied upon the sort of task we are performing.



# **5. TEACHING THROUGH ROLE PLAY**

# **PRATHYUSA ENGINEERING COLLEGE**

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Academic Year:2022-2023

Year/Sem:II/IV

Subject Code/Name: CS3401/ALGORITHMS

### **TEACHING THROUGH ROLE PLAY**

#### **LINEAR SEARCH AND BINARY SEARCH**

##### **LINEAR SEARCH:**

This algorithm works by sequentially iterating through the whole array or list from one end until the target element is found. If the element is found, it returns its index, else -1.

Time Complexity Analysis:

The Best Case occurs when the target element is the first element of the array. The number of comparisons, in this case, is 1. So, the time complexity is  $O(1)$ .

The Average Case: On average, the target element will be somewhere in the middle of the array. The number of comparisons, in this case, will be  $N/2$ . So, the time complexity will be  $O(N)$  (the constant being ignored).

The Worst Case occurs when the target element is the last element in the array or not in the array. In this case, we have to traverse the entire array, and so the number of comparisons will be  $N$ . So, the time complexity will be  $O(N)$ .



A linear search is the simplest approach employed to search for an element in a data set. It examines each element until it finds a match, starting at the beginning of the dataset, until the end. The search is finished and terminated once the target element is located.

## BINARY SEARCH:

This type of searching algorithm is used to find the position of a specific value contained in a sorted array. The binary search algorithm works on the principle of divide and conquer and it is considered the best searching algorithm because it's faster to run.



It works by repeatedly dividing in half the portion of the list that could contain the item, until you have narrowed down the possible locations to just one. We used binary search in the guessing game in the introductory tutorial.

**Time Complexity Analysis:**

The Best Case occurs when the target element is the middle element of the array. The number of comparisons, in this case, is 1. So, the time complexity is  $O(1)$ .

The Average Case: On average, the target element will be somewhere in the array. So, the time complexity will be  $O(\log N)$ .

The Worst Case occurs when the target element is not in the list or it is away from the middle element. So, the time complexity will be  $O(\log N)$ .

## **5. TEACHING THROUGH TECHNOLOGY (MIND MAP TOOLS)**

PRATHYUSHA ENGINEERING COLLEGE  
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**Academic Year:2022-2023**

**Year/Sem: II/IV**

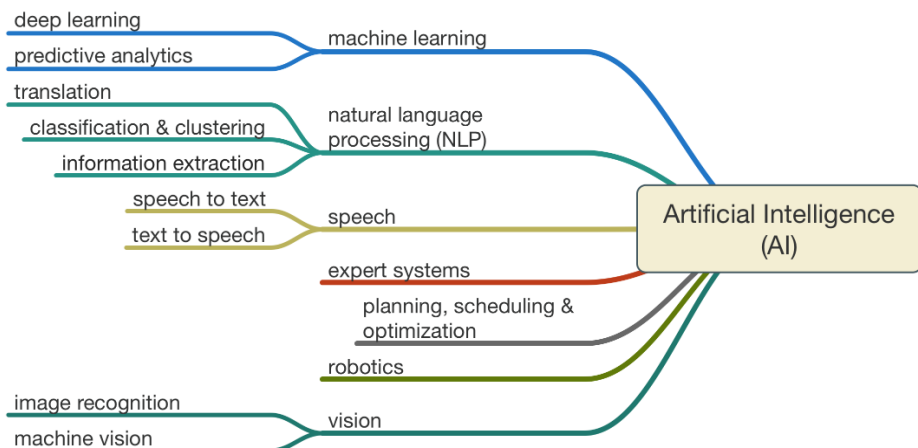
**Course Code/Name: CS3491 Artificial Intelligence and  
Machine Learning**

## MIND MAP TOOL



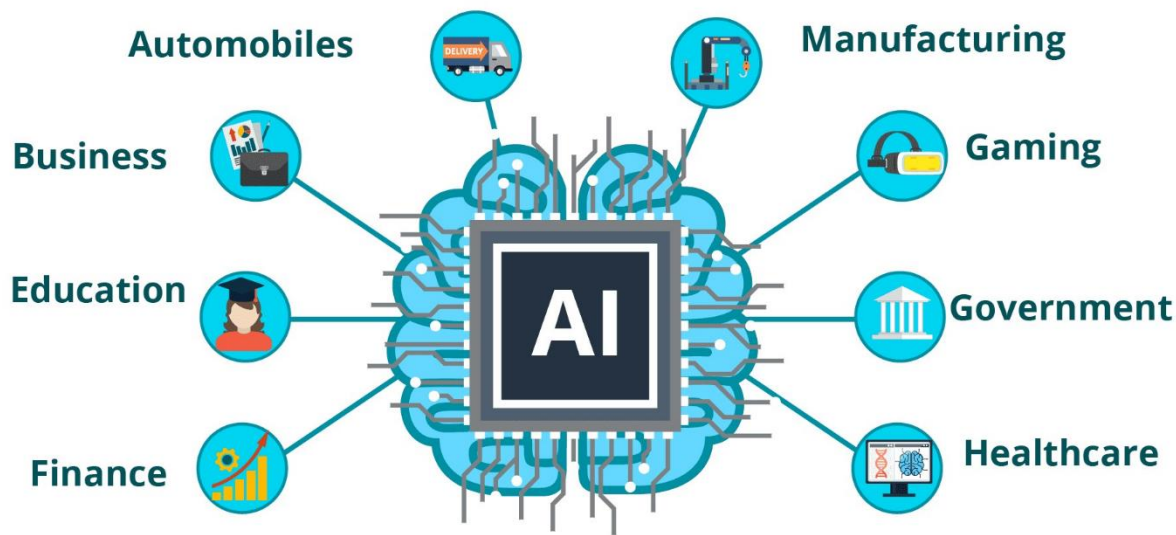
### **Introduction to AI:**

**Artificial Intelligence (AI)** refers to the simulation of human intelligence in machines that are programmed to think and act like humans. It involves the development of algorithms and computer programs that can perform tasks that typically require human intelligence such as visual perception, speech recognition, decision-making, and language translation.



**Applications of AI:**

**Applications of Artificial Intelligence**

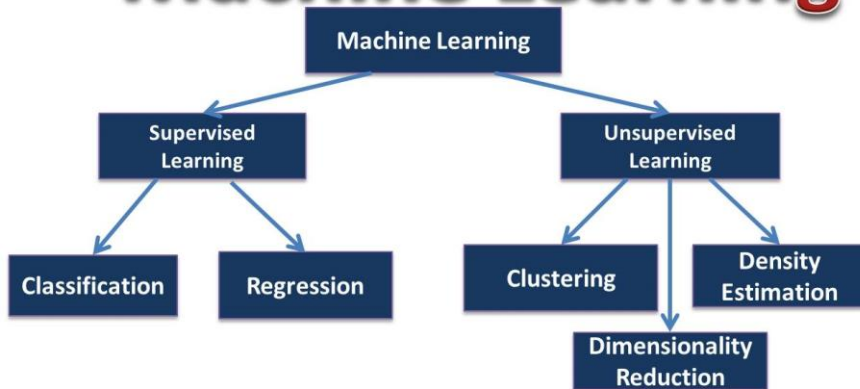


**Introduction to machine learning:**

Machine learning is programming computers to optimize a performance criterion using example data or past experience. We have a model defined up to some parameters, and learning is the execution of a computer program to optimize the parameters of the model using the training data or past experience. The model may be predictive to make predictions in the future, or descriptive to gain knowledge from data.

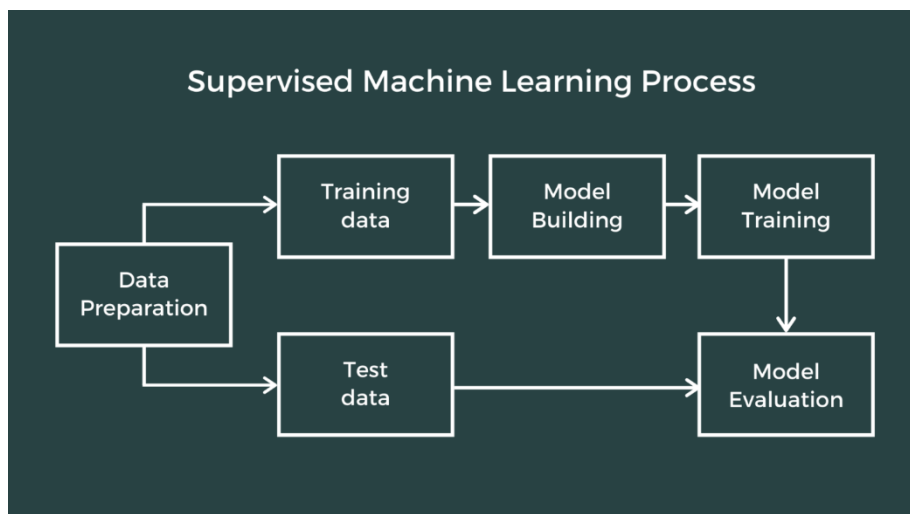


# Introduction to Machine Learning



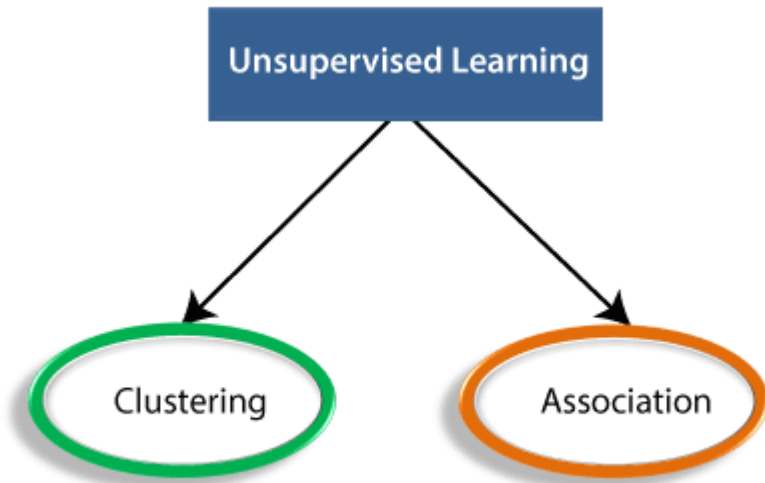
## Supervised Machine Learning

Supervised learning is a machine learning technique that is widely used in various fields such as finance, healthcare, marketing, and more. It is a form of machine learning in which the algorithm is trained on labeled data to make predictions or decisions based on the data inputs. In supervised learning, the algorithm learns a mapping between the input and output data. This mapping is learned from a labeled dataset, which consists of pairs of input and output data. The algorithm tries to learn the relationship between the input and output data so that it can make accurate predictions on new, unseen data.




## Unsupervised Machine Learning:


Unsupervised learning, also known as [unsupervised machine learning](#), uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention. Its ability to discover similarities and differences in information make it the ideal solution for exploratory data analysis, cross-selling strategies, customer segmentation, and image recognition.



# **6. TEACHING THROUGH SKILLRACK PORTAL**

# SKILLRACK STUDENT LOGIN PAGE




KANDULA SNEHITHA-111421104035@prathyusha 0/10 1 0 0 0 124 42969  Valid Till: 31-May-2025

[Home](#) [Reports](#) [Profile](#) [Help](#) [Logout](#)


Programs Solved: **452** Tutorials **452** Tracks **0**

**Learn C, Java, Python, SQL, Data Structures**




[View](#)

**Programming Challenges - Tracks**




[View](#)

**Daily Challenge (24 Hours)**




[View](#) **0** Solved

**Daily Test (24 Hours)**




[View](#)

**Programming Tests (Test Center)**



**Live Assisted Coding Sessions (LACS) Programs**

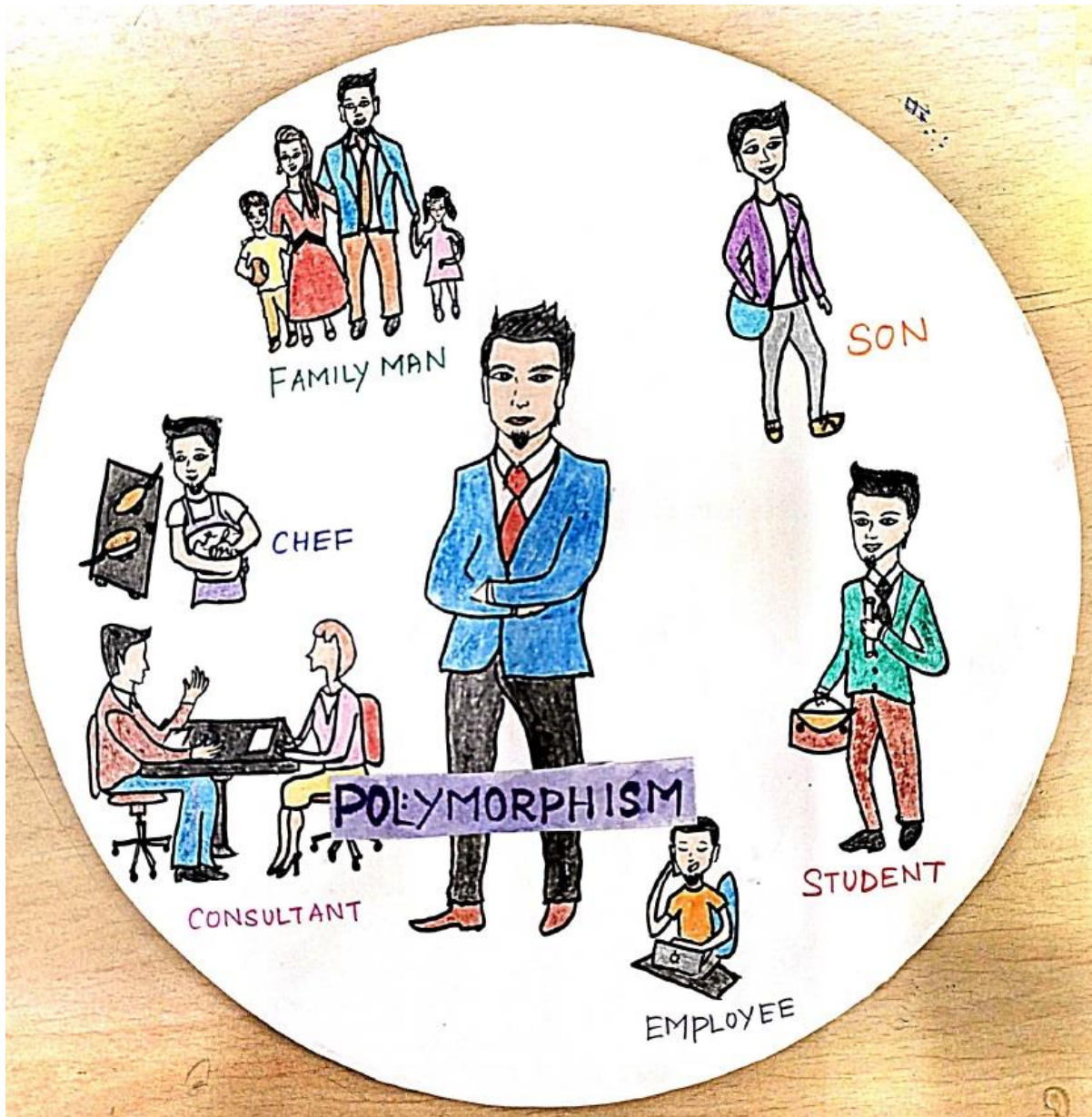


# **7. ANIMATED VIDEO AND HANDMADE POSTER**

# ANIMATED VIDEO AND HANDMADE POSTER

COURSE CODE/NAME:CS3391/OBJECT ORIENTED PROGRAMMING

TOPIC: POLYMORPHISM



Animated videos:

[https://drive.google.com/file/d/1ts5mL1sjXKjv\\_534ftod2sS8AcdrIWrC/view?usp=drive\\_link](https://drive.google.com/file/d/1ts5mL1sjXKjv_534ftod2sS8AcdrIWrC/view?usp=drive_link)

# **8. TEACHING THROUGH FLIPPING CLASSROOM**

SL. NO.	COURSE NAME	TOPICS	YOUTUBE VIDEO LINK IN PEC CHANNAL
1	CLOUD COMPUTING	RECENT SECURITY CHALLENGES IN CLOUD COMPUTING	<a href="https://www.youtube.com/watch?v=T_HbQR_b-sNc">https://www.youtube.com/watch?v=T_HbQR_b-sNc</a>
2	ADVANCED TOPICS	INTRODUCTION TO QUANTUM COMPUTING	<a href="https://www.youtube.com/watch?v=mjL1HaQ5srw">https://www.youtube.com/watch?v=mjL1HaQ5srw</a>
3	FUNDAMENTANAL OF DATA SCIENCE	ROLE OF DATA SCIENCE IN AGRICULTURE	<a href="https://www.youtube.com/watch?v=ni919sXG7nU">https://www.youtube.com/watch?v=ni919sXG7nU</a>
4	ARTIFICIAL INTELLIGENCE,ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	PREDICTIVE MODELLING	<a href="https://www.youtube.com/watch?v=1pIkhYioo6k">https://www.youtube.com/watch?v=1pIkhYioo6k</a>
5	COMPUTER NETWORKS	TCP CONGESTION CONTROL	<a href="https://www.youtube.com/watch?v=XwUyN0HuUHk">https://www.youtube.com/watch?v=XwUyN0HuUHk</a>
6	ARTIFICIAL INTELLIGENCE,ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	BAYESIAN NETWORKS	<a href="https://www.youtube.com/watch?v=CyY5JXXcqN4">https://www.youtube.com/watch?v=CyY5JXXcqN4</a>
7	PRINCIPLES OF MANAGEMENT	SIX SIGMA	<a href="https://www.youtube.com/watch?v=stZHh3aF7f8">https://www.youtube.com/watch?v=stZHh3aF7f8</a>
8	ARTIFICIAL INTELLIGENCE,ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	DEEP LEARNING	<a href="https://www.youtube.com/watch?v=fjY2QLruiXs">https://www.youtube.com/watch?v=fjY2QLruiXs</a>
9	DATA STRUCTURE, DESIGN AND ANALYSIS OF ALGORITHM	DIVIDE AND CONQUER ALGORITHM	<a href="https://www.youtube.com/watch?v=5jof3N5vHA4">https://www.youtube.com/watch?v=5jof3N5vHA4</a>
10	ARTIFICIAL INTELLIGENCE,ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	RING BASED AI	<a href="https://www.youtube.com/watch?v=JkF-o1kUCrk">https://www.youtube.com/watch?v=JkF-o1kUCrk</a>



11	PROGRAMMING IN C	C LOGICAL CRACKING	<a href="https://www.youtube.com/watch?v=QdCUzT4tQvo">https://www.youtube.com/watch?v=QdCUzT4tQvo</a>
12	COMPUTER GRAPHICS	AUGMENTED REALITY	<a href="https://www.youtube.com/watch?v=zEdiOXnnhwM">https://www.youtube.com/watch?v=zEdiOXnnhwM</a>
13	SOFTWARE ENGINEERING	LIFE CYCLE MANAGEMENT COST	<a href="https://www.youtube.com/watch?v=dVhHtwnpj8w">https://www.youtube.com/watch?v=dVhHtwnpj8w</a>
14	COMPUTER NETWORKS	ROUTING	<a href="https://www.youtube.com/watch?v=Dy7WrGo5Vkk">https://www.youtube.com/watch?v=Dy7WrGo5Vkk</a>
15	CRYPTOGRAPHY AND NETWORK SECURITY	DIGITAL SIGNATURE	<a href="https://www.youtube.com/watch?v=dBHQQ8x_5KA">https://www.youtube.com/watch?v=dBHQQ8x_5KA</a>
16	COMPUTER NETWORKS	MULTICAST ROUTING	<a href="https://www.youtube.com/watch?v=-PQZ-Kvpl-k">https://www.youtube.com/watch?v=-PQZ-Kvpl-k</a>
17	COMPUTER ARCHITECTURE	MIPS IMPLEMENTATION	<a href="https://www.youtube.com/watch?v=th2gABvXhpg">https://www.youtube.com/watch?v=th2gABvXhpg</a>
18	CRYPTOGRAPHY AND NETWORK SECURITY	POLYGRAPHIES SUBSTITUTION METHOD	<a href="https://www.youtube.com/watch?v=71NxbuxkoDU">https://www.youtube.com/watch?v=71NxbuxkoDU</a>
19	DATA STRUCTURE, DESIGN AND ANALYSIS OF ALGORITHM	OPTIMAL BINARY SEARCH	<a href="https://www.youtube.com/watch?v=sJ_io6tAID4">https://www.youtube.com/watch?v=sJ_io6tAID4</a>
20	OBJECT ORIENTED PROGRAMMING	INHERITANCE	<a href="https://www.youtube.com/watch?v=Upgh-z0V2WI">https://www.youtube.com/watch?v=Upgh-z0V2WI</a>
21	HUMAN COMPUTER INTERACTION	HUMAN COMPUTER INTERACTION	<a href="https://www.youtube.com/watch?v=6MxQo2Ep1nE">https://www.youtube.com/watch?v=6MxQo2Ep1nE</a>
22	SOFTWARE ENGINEERING	CYCLOMATIC COMPLEXITY	<a href="https://www.youtube.com/watch?v=6MxQo2Ep1nE">https://www.youtube.com/watch?v=6MxQo2Ep1nE</a>

23	PROGRAMMING IN C	C BASICS FOR LOGICAL CRACKING	<a href="https://www.youtube.com/watch?v=2wa3FYkdAOM">https://www.youtube.com/watch?v=2wa3FYkdAOM</a>
24	SOFTWARE ENGINEERING	CYCLOMATIC COMPLEXITY	<a href="https://www.youtube.com/watch?v=a2ggxfh82xY">https://www.youtube.com/watch?v=a2ggxfh82xY</a>
25	OPERATING SYSTEM	VIRTUALIZATION	<a href="https://www.youtube.com/watch?v=iWFr7_B4ij0">https://www.youtube.com/watch?v=iWFr7_B4ij0</a>
26	COMPUTER NETWORKS	INTERCONNECTION NETWORKS	<a href="https://www.youtube.com/watch?v=0gvpnN45M4U">https://www.youtube.com/watch?v=0gvpnN45M4U</a>
27	OBJECT ORIENTED ANALYSIS AND DESIGN	UNIFIED MODELLING LANGUAGE	<a href="https://www.youtube.com/watch?v=WcYV25VPS4U">https://www.youtube.com/watch?v=WcYV25VPS4U</a>
28	DISTRIBUTED COMPUTING	TASK MANAGEMENT IN DISTRIBUTED SYSTEM	<a href="https://www.youtube.com/watch?v=WLpvR7tN-5c">https://www.youtube.com/watch?v=WLpvR7tN-5c</a>
29	OPERATING SYSTEM	DEADLOCK	<a href="https://www.youtube.com/watch?v=flfmWSOC2Ko">https://www.youtube.com/watch?v=flfmWSOC2Ko</a>
30	OBJECT ORIENTED PROGRAMMING	ABSTRACT CLASS	<a href="https://www.youtube.com/watch?v=QX2C_X_BK1g">https://www.youtube.com/watch?v=QX2C_X_BK1g</a>

# **9. TEACHING THROUGH VIRTUAL LABS**

# PRATHYUSHA ENGINEERING COLLEGE

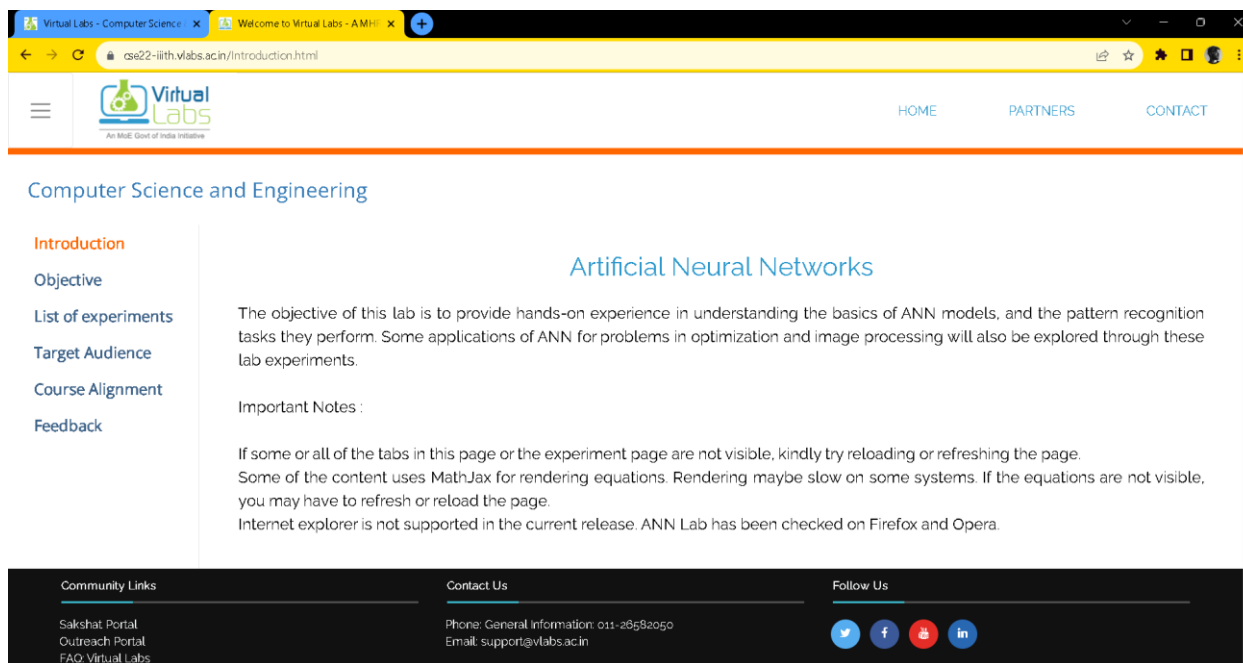
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## Virtual Lab

YEAR/SEM:III/VI

LAB NAME:ARTIFICIAL INTELLIGENCE LAB

Academic year: 2022-2023



The screenshot displays a web browser window with the URL [cse22-iitth.vlabs.ac.in/Introduction.html](http://cse22-iitth.vlabs.ac.in/Introduction.html). The page features the Virtual Labs logo and navigation links for HOME, PARTNERS, and CONTACT. The main content area is titled "Computer Science and Engineering" and "Artificial Neural Networks". A sidebar on the left lists navigation options: Introduction (highlighted), Objective, List of experiments, Target Audience, Course Alignment, and Feedback. The main text describes the lab's objective: "The objective of this lab is to provide hands-on experience in understanding the basics of ANN models, and the pattern recognition tasks they perform. Some applications of ANN for problems in optimization and image processing will also be explored through these lab experiments." It also includes "Important Notes" regarding browser compatibility and content rendering.

Virtual Labs  
An MoE, Govt of India Initiative

HOME PARTNERS CONTACT

### Computer Science and Engineering

### Artificial Neural Networks

**Introduction**

Objective

List of experiments

Target Audience

Course Alignment

Feedback

The objective of this lab is to provide hands-on experience in understanding the basics of ANN models, and the pattern recognition tasks they perform. Some applications of ANN for problems in optimization and image processing will also be explored through these lab experiments.

Important Notes :

If some or all of the tabs in this page or the experiment page are not visible, kindly try reloading or refreshing the page. Some of the content uses MathJax for rendering equations. Rendering maybe slow on some systems. If the equations are not visible, you may have to refresh or reload the page. Internet explorer is not supported in the current release. ANN Lab has been checked on Firefox and Opera.

Community Links

Sakshat Portal  
Outreach Portal  
FAQ Virtual Labs

Contact Us

Phone: General information: 011-28582050  
Email: support@vlabs.ac.in

Follow Us

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## Computer Science and Engineering

Introduction

Objective

List of experiments

Target Audience

Course Alignment

Feedback

### Artificial Neural Networks

1. Parallel and distributed processing - I. Interactive activation and competition models
2. Parallel and distributed processing - II. Constraint satisfaction neural network models
3. Perceptron learning
4. Multi layer feed forward neural networks
5. Hopfield model for pattern storage task
6. Hopfield model with stochastic update
7. Competitive learning neural networks for pattern clustering
8. Solution to travelling salesman problem using self organizing maps
9. Solution to optimization problems using Hopfield models
10. Weighted matching problem: Deterministic, stochastic and mean-field annealing of an Hopfield model

#### Community Links

Sakshat Portal  
Outreach Portal

#### Contact Us

Phone: General information: 011-26582050  
Email: support@vlabs.ac.in

#### Follow Us





Select a graph:

Graph-1: 4 nodes

No. of nodes:

Node locations:

The cost function to be minimized is:

$$L[n] = \sum_{i < j} d_{ij} n_{ij} + \frac{\gamma}{2} \sum_i (1 - \sum_j n_{ij})^2$$

where  $d_{ij}$  is the distance between points  $i$  and  $j$ , and  $n_{ij}$  denotes the link or edge between points  $i$  and  $j$ .

$$\Delta L[n] = (d_{ij} - \gamma + \gamma \sum_{k \neq j} n_{ik} + \gamma \sum_{k \neq i} n_{jk}) \Delta n_{ij}$$

Input nodes

Weighted matched pairs



### Graph bipartition problem

Select a graph: Sample graph 1: 4 nodes

No of nodes:

No. of edges:

Edges:

Alpha:

DeltaT:

Input graph Bipartitioned graph



No. of Cities: No. of Nodes: No. of Iterations: City Step Size: Item Step Size:

1. City locations are indicated by blue stars.
2. Two-dimensional weight vectors are indicated by numbers.
3. The city chosen for current iteration is shown using a red star symbol.
4. The two plots show the weight vectors, before and after the adjustment of weights for a given city.



ADJUST TEMPERATURE

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

$w_{12} = w_{21}$     $w_{23} = w_{32}$     $w_{31} = w_{13}$    TEMP := 0  
 -0.5   0.5   0.4

Threshold=0.7

$w_{12} = w_{21}$     $w_{13} = w_{31}$   
 $w_{23} = w_{32}$

Threshold=-0.1   Threshold=-0.2

0	0	1	10	11	100	101	110	111
0	0.33	0	0.33	0	0.33	0	0	0
1	0.33	0	0	0.33	0	0.33	0	0
10	0	0	1	0	0	0	0	0
11	0	0	0.33	0.33	0	0	0	0.33
100	0	0	0	0	1	0	0	0
101	0	0	0	0	0.33	0.33	0	0.33
110	0	0	0.33	0	0.33	0	0	0.33
111	0	0	0	0	0	0	0	1

110 {0.2}  
 101 {0.1}  
 111 {0}  
 100 {-0.1}

[Click Here To View The Annealing Schedule](#)



### Hopfield Model for Pattern Storage Task

Hint: click on '011' and '110' to be represented as stable states

0 0 0	0 0 1	1 0 0	1 0 1	0 1 0	0 1 1	1 1 0	1 1 1
-------	-------	-------	-------	-------	-------	-------	-------

Click over the states to choose them as minimum energy states  
 You can choose at most two states as minimum  
 Make sure they are separated by more than one hamming distance

**Submit**



### Multilayer Feedforward Neural Networks

1. This is a 3 layer MLFFNN with one hidden layer, one input layer, and one output layer.
2. Select the problem type and the number of nodes in the hidden layer, and click in train MLFFNN.
3. Now click on test MLFFNN.

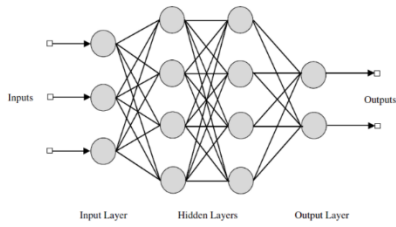


Fig. 2. Multilayer feedforward artificial neural network.

Problem type:  Number of nodes in hidden layer:





Select problem type

Linearly separable

No. of samples per class:

20

No. of iterations:

20

Sample Step Size:

1

Iteration Step Size:

1

Init perceptron Next sample Next Iteration

### Information

1. Samples of class 1 and class 2 are shown in blue and red, respectively.
2. The line described by weights of the perceptron is shown in black.
3. The sample point presented to the perceptron is shown by a black star symbol.
4. The lines described by weights, before and after a sample is presented to the perceptron, are shown in the two subplots.



Constraint Satisfaction Neural Network Models

CLICK HERE TO SEE THE HINTON DIAGRAMS

CLICK

THE ROOM TYPES THE MODEL GETS TRAINED FOR ARE KITCHEN, BEDROOM and OFFICE.

FOLLOWING IS A LIST OF DESCRIPTORS USED TO TRAIN THE MODEL AND DESCRIBE ABOVE ROOM TYPES

ceiling	very-small	desk-chair	fire-place	dresser
walls	desk	clock	drapes	television
door	telephone	picture	stove	bath-tub
window	bed	floor-lamp	sink	toilet
very-large	typewriter	sofa	refrigerator	scale
large	book-shelf	easy-chair	toaster	coat-hanger
medium	carpet	coffee-cup	cupboard	computer
small	books	ash-tray	coffee-pot	oven

Click here for stamping descriptors

Variable	Value
Estr	0.4
Actmax	1.0
Actmin	-1.0
Actrest	-0.1
Decay	0.1
Beta	0.1
Gamma	0.1

Reset original values and restart

Set values and restart

Interactive Activation and Competition - click on units to activate, SPACE to pause, 'r' to reset, 's' for slow motion view



Cycle: 188    Global Change: 0.000000

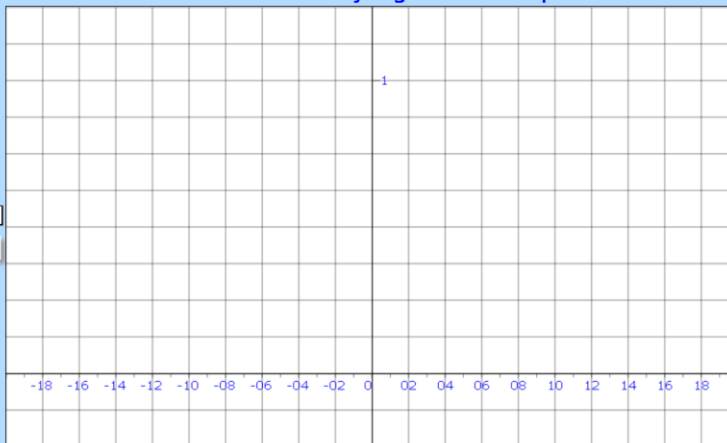
### Introduction to Fundamental of Fuzzy Logic and Basic Operations Simulator

#### Plot

- Addition
- Substraction
- Complement
- Union
- Intersection

CALCULATE    CLEAR

INSTRUCTION



\*\* To perform the experiment click on X-axis



Part-1: Pre-segmented examples

[Part-2 >>](#)

[README](#)

Ex-2: Telugu

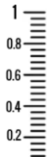
Change subword unit:

**Utterance** ఈ రోజు వార్తల్లోని ముఖ్యాంశాలు

**Transliteration** iirooju vaartalooni mukhyaamshaalu

**Subword units** ii roo ju vaar tal loo ni mukh yaam shaa lu

1. Verify the subword unit boundaries given in the table by zooming and listening to selected portions of the waveform.
2. Note that clicking on the symbol within the first column of the table automatically zooms to fit the presegmented label.
3. Repeat the experiment by choosing word and phoneme as the subword unit.



SYM	BEG	END
SIL	1	5463
ii	5463	7342
roo	7342	9194

**10. VIRTUAL TEACHING - LEARNING  
MANAGEMENT SYSTEM (LMS)  
(GOOGLE CLASS ROOM)**



Stream

Classwork

People

Grades



Create

All topics

UNIVERSITY QP



UNIVERSITY QP

Posted May 1, 2023

TWO MARKS OF ALL UNIT



TWO MARKS OF ALL UNIT

Posted May 1, 2023

UPC Writing Practice Test-1



## Link For OS Book Solutions



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Link For OS Book Solutions  1

Posted May 1, 2023

## Class Test-III



---

Online Class Test-III

Posted May 1, 2023

## Test-2



---

Test - 2

Due May 1, 2023





Stream

Classwork

People

Grades



# UNIT 4 NOTES



UNIT 4 NOTES

Edited May 1, 2023

## UNIT 5 NOTES



UNIT 5 NOTES

Edited May 1, 2023

## UNIT 3 NOTES and PPT



UNIT-3 NOTES and PPT

Posted Apr 1, 2023

## UNIT I Two marks Question Bank With A...



UNIT I Two marks Question Bank Wit...

Edited Mar 24, 2023

## UNIT 2 NOTES



UNIT 2 NOTES and PPT

Edited Apr 10, 2023



Classroom >

OS

WSEM 001



Stream

Classwork

People

Grades



UNIT 1 Notes



UNIT-I Notes

Posted Feb 28, 2023



# **11. PROJECT BASED LEARNING**

**PRATHYUSHA ENGINEERING COLLEGE**

**DEPARTMENT OF CSE**

**ACADEMIC YEAR:2022-23**

**COURSE CODE/NAME: CS3391 / Object Oriented Programming**

**YEAR/SEM/SEC:II / III /A**

<b>SL. NO</b>	<b>REG.NO</b>	<b>NAME OF THE STUDENT</b>	<b>MINI PROJECT TITLE</b>
1	111421104001	AKKUPALLI GOPI	OTP and Password generator
2	111421104002	ALAPAKA NAGA JASWANTH	
3	111421104003	AMBATI KIRAN BABU	
4	111421104004	ANKINAPALLI ADARSSH REDDY	Finding the word form
5	111421104005	AVULA GUNADEEP	
6	111421104006	AVULA GUNA KOUSHIK REDDY	
7	111421104007	BANDARU VENKATA MANJUNADH	Application form
8	111421104008	BANDI POOJITHA	
9	111421104009	BHARATHI S	
10	111421104010	CHANDRA PRABHA A	Text editor
11	111421104011	DEEPIKA A	
12	111421104012	DESU VISHNU VARDHAN	
13	111421104013	DEVA R	sudoko puzzle
14	111421104014	DEVI SREE T Y	
15	111421104015	DHANUSH T	
16	111421104016	DODDETIPALLI VENKATA SRIHARI	Grade Calculator
17	111421104017	GANGAVARAPU CHANDANA	
18	111421104019	GOKULAKRISHNA R S	
19	111421104020	GOLLA KAVYA	Online exam
20	111421104021	GOUTHAMAN S	
21	111421104022	HAARINI G	
22	111421104023	HARIPRASANTH S	Guessing a number
23	111421104024	HARIPRASATH V	
24	111421104025	HARISH R	

25	111421104026	HARISHA V	Tic tac toe game
26	111421104028	HASWANTH H	
27	111421104029	JENISON VIBIN RAJ K	
28	111421104030	JENI SUJKA I	Library management
29	111421104031	KALAIYARASI M	
30	111421104032	KAMALA KANNAN S	
31	111421104033	KAMALIKA B S	Generate random password
32	111421104034	KAMANI MANOGNA	
33	111421104035	KANDULA SNEHITHA	
34	111421104036	KARNAM BHANU PRAKASH	Word count using javafx application
35	111421104037	KARNAM JEEVAN KUMAR	
36	111421104038	KAVILI SAI POORNESH	
37	111421104039	K B MANOJKUMAR	Number of words finder
38	111421104040	KOLLI LOHITHA REDDY	
39	111421104041	KOMMI HIMABINDU	
40	111421104042	KUNTRAPAKAM VISHNU VARDHAN REDDY	Dungeon game
41	111421104043	KURAPATI RUSHMITHA	
42	111421104044	K YUVA SHANKAR	
43	111421104045	LAKKIREDDY SURYA PRAKASH REDDY	Snake game
44	111421104046	LAKSHMI NARAYANAN N	
45	111421104047	LOGESH S	
46	111421104048	MADESHKANTH S	online book store
47	111421104049	MADUMITHA S	
48	111421104050	MALLEBOYINA DEEPTHI	
49	111421104051	MANDAGAPU DINESH	ATM program
50	111421104052	MANIMARAN P	
51	111421104053	MARRI SRIHARSHA	
52	111421104054	MEDA BINDHU SREE	Scientific Calculator
53	111421104055	MEKALA HARSHAVARDHAN	
54	111421104056	MEKALA SAI PUSHPAK YADAV	

55	111421104057	MEYYARASU S	Electricity bill generation
56	111421104058	MONISH R	
57	111421104059	MOTUPALLI POOJITHA	
58	111421104060	MUDDANA VAMSI KRISHNA	Currency converter
59	111421104061	MULAGIRI SIREESHA	
60	111421104062	MUNGAMURU CHAITRESH REDDY	
61	111421104063	MURTHYNAYANI CHARAN GANESH	javafx Barchart Application
62	111421104301	AKASH	
63	111421104303	KUBERAN	

**PRATHYUSHA ENGINEERING COLLEGE**

**DEPARTMENT OF CSE**

**ACADEMIC YEAR:2022-23**

**COURSE CODE/NAME: CS3391 / Object Oriented Programming**

**YEAR/SEM/SEC:II / III /B**

<b>SL. NO</b>	<b>REG.NO</b>	<b>NAME OF THE STUDENT</b>	<b>MINI PROJECT TITLE</b>
1	111421104064	NADAVADI MANASWINI	Tic tac toe game
2	111421104065	NADAVALA MYTHRESH	
3	111421104066	NAGINENI AMARESWAR CHOWDARY	

4	111421104067	NASINA NIKHILA	Number guessing game
5	111421104068	N DEEPAK	
6	111421104069	NEGHA L	
7	111421104070	NIBRAS ADNAN BASHEER	Random password generator
8	111421104071	NIDAMANURU MADHU BHAVANA	
9	111421104072	NIGHIL ANANTH V	
10	111421104073	PABBATHI PADMAJA	Student CGPA
11	111421104074	PABBATHI SREE BINDHU	
12	111421104075	PACHAVA LAVANYA	
13	111421104076	PALEPU SUDHEER	Grade calculator
14	111421104077	PARAMAGURU A S	
15	111421104078	PARITALA VENKATA VAIBHAV	
16	111421104079	PATIBANDLA VYSHNAVI	Stock Monitoring using Line Chart
17	111421104080	PATTIDI HEMA KEERTHI	
18	111421104081	PAVITHRA S	
19	111421104082	PENIGALAPATI HASWANTH	employee details
20	111421104083	POOJA V S	
21	111421104084	POTLA DIVYA	
22	111421104085	POTTAPALLI ABHINAYA	javafx Barchart Application
23	111421104086	PRANAW O	
24	111421104087	PRATHAPKUMAR K	
25	111421104088	PRAVEEN A	Currency converter
26	111421104090	PRAVEEN S (05.11.2003)	
27	111421104091	PRAVEEN KUMAR A	
28	111421104092	PRIYA T	Scientific Calculator
29	111421104093	PRIYADHARSHINI N	
30	111421104094	PUNURU PRANEETHA	
31	111421104095	PUTHETI PAVAN KALYAN	Electricity bill generation

32	111421104096	RAJU KUSUMA	online test project
33	111421104097	RAM PRASATH T K	
34	111421104098	R ANISH	
35	111421104099	RAYAPATI VISHNU VARDHAN BABU	Application form
36	111421104100	RENTALA DHANUSH	
37	111421104101	ROSARIN TEENA M	
38	111421104102	RUDRAVARAM HARI BHUSHAN	atm machine working process
39	111421104103	SAKAVARAPU CHARAN TEJA	
40	111421104104	SANISSETTY AKSHAYA	
41	111421104105	SHAKUNIYA SUNITA GIRDHARILAL	Bank management software
42	111421104106	SIGINAM HEMANTH	
43	111421104107	SIVASANKAR J M	
44	111421104108	SONY C	online test of java
45	111421104109	SRUTHI M	
46	111421104110	SURYA R	
47	111421104111	SUSHANTH D	OTP and Password generator
48	111421104112	SWATHI V	
49	111421104113	TATIKONDA SAI VINAY CHOWDARY	
50	111421104114	TEEGALA SNEHA	Finding the word form
51	111421104115	THANIKONDA NITHIN	
52	111421104116	THOTA PUSHPA	
53	111421104118	VIJAYAKUMAR C	sudoko puzzle
54	111421104119	VINAY B L	
55	111421104120	VISHALI S	
56	111421104121	V S MONISH KUMAR	Snake game
57	111421104122	YALLA PRANATHI	
58	111421104123	YASHWANTH KUMAR S	

59	111421104124	YASMEEN RAIKHANA J	
60	111421104125	NALLURI VENKATA VINOD SAI	
61	111421104126	PULLALACHERUVU ANUSH REDDY	online book store
62	111421104304	RAMALINGAM BALAJI	

# **12. SOCIAL RESPONSIBILITY**



## Social related projects done by students

Sl. No.	Register Number	Name of the student	Project Title	Internal Guide
1	111419104034	G Pallavi	Cotton Plant and Leaf Detection using Deep Learning	Ms.E.SHIMONA
	111419104052	Madagalam Ammu		
	111419104054	Madala Venkata Sowmya		
2	111419104053	M Durga Mahesh	Food Donation Application for Android	Dr.M.GOPIKRISHNAN
	111419104068	Natakarani Ankaiah		
	111419104102	S. Chethan		
3	111419104071	P.SaiLaksmi Tejaswini	Animal Detection in Farms using Open CV	Ms.T.R.SOUMYA
	111419104096	S.Sathwika		
	111419104107	S.Keerthana		
4	111419104074	P. Sravanthi	Forecasting the Fires on Forest	Ms.N.SRIPRIYA
	111419104077	P. Pushkala Sai		
	111419104115	V. Madhuri		
5	111419104082	Priyadharshini P	Augmented Reality based application for food menu	Dr.W.THAMBA MESHACH
	111419104095	Ruthra M		
6	111419104067	Namburu Siva	Soil Testing App	Ms.R.MEENA
	111419104069	Neyvalli Santhosh		
	111419104103	Shaik Khaja Hussain		