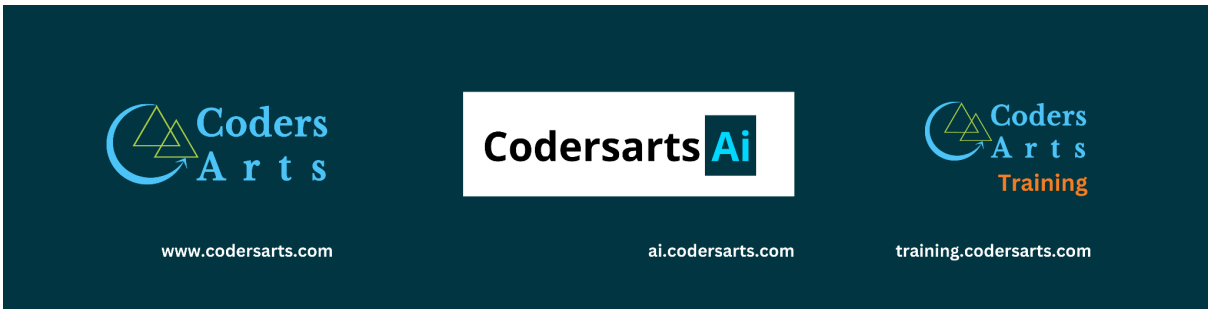
About Codersarts Training



Codersarts Training is a division of Codersarts that provides training services on a variety of programming languages and technologies. The company's team of experienced trainers can help individuals and businesses of all sizes to learn new skills and improve their existing skills.

Codersarts Training offers a variety of services, including:

- **1:1 Training and Tutoring:** Codersarts offers on-demand 1:1 training and tutoring in a variety of programming languages and technologies. This is a great option for students, developers, and anyone else who wants to learn new skills or improve their existing skills.
- **Programming Assignment Help:** Codersarts can help you with your programming assignments, homework, and final year projects. They can also help you with general debugging and problem-solving.
- **Online Courses:** Codersarts offers a variety of online courses in programming languages, web development, and other related topics. These courses are self-paced and can be taken from anywhere in the world.
- **Mentorship:** Codersarts offers mentorship programs to help students and developers advance their careers. Mentors provide guidance and support on a variety of topics, such as skill development, job search, and career planning.

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- **Corporate Training:** Codersarts offers corporate training programs to help businesses train their employees on new technologies and programming languages. These programs can be customized to meet the specific needs of each business.
- **Live Project Training:** This type of training involves working on real-world projects with experienced instructors. This is a great way to gain practical experience and to learn how to apply your skills to real-world problems.

If you are serious about learning to code and starting your career as a software developer, we highly recommend that you consider live project training. It is a great way to gain practical experience, to learn from experts, and to build your portfolio.

Here is a list of in-demand tech skills for course training

- Programming Languages: Python, Java, JavaScript, C/C++, and Go
- Web Development
- Mobile Development
- Cloud Computing
- Data Science
- Machine Learning
- Artificial Intelligence

Please note that this is just a small sample of the many in-demand tech skills. There are many other skills that are valuable in the tech industry, such as cybersecurity, DevOps, and IT support.

Image Classification on MNIST Dataset (Using ANN)

About the course:

This course is an ideal starting point for individuals interested in deep learning. This project-based course is designed to introduce participants to the fundamentals of image classification using Artificial Neural Networks (ANNs). The MNIST dataset, a collection of hand-written digits, serves as a practical and well-known platform for this exploration.

Throughout the course, students will gain hands-on experience in preprocessing image data, building ANN models, training classifiers, and evaluating model performance. By the end of the course, participants will have the skills to develop their image classification models and understand the foundations of neural network-based image analysis.

Learning Outcomes:

Upon completing this course, participants will:

- Understand the basics of image classification and its applications.
- Develop proficiency in Python programming for machine learning.
- Master data preprocessing techniques for image data.
- Learn the architecture and components of Artificial Neural Networks (ANNs).
- Build, train, and fine-tune ANN models for image classification.
- Apply techniques for model evaluation and selection.
- Gain insights into the MNIST dataset and its relevance in computer vision.
- Be equipped to tackle image classification tasks in real-world scenarios.

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Prerequisites:

- Basic programming knowledge, preferably in Python.
- Familiarity with fundamental machine learning concepts.
- Access to a Python development environment with libraries such as NumPy, TensorFlow, or PyTorch for deep learning.

Libraries and Programming Language Used:

- Python for coding and scripting.
- TensorFlow or PyTorch for building and training Artificial Neural Networks.
- Common libraries like NumPy for data manipulation.

Course Syllabus:

Introduction to Image Classification
- Understanding image classification tasks and their importance.
- Applications of image classification in various domains.

Setting Up the Development Environment
- Installing and configuring Python, TensorFlow/PyTorch, and relevant libraries.
- Preparing the development environment for image classification projects.

Introduction to MNIST Dataset
- Overview of the MNIST dataset.
- Exploring the dataset structure and characteristics.

Data Preprocessing for Image Classification
- Loading and visualizing MNIST images.
- Data normalization and preprocessing techniques.

Artificial Neural Networks (ANNs)
- Fundamentals of ANN architecture.
- Understanding layers, neurons, and activation functions.

Building an Image Classification Model
- Designing and implementing a basic ANN for image classification.
- Model compilation and configuration.

Training and Optimization
- Preparing training and validation datasets.
- Training the ANN model on MNIST images.
- Hyperparameter tuning and optimization.

Model Evaluation and Metrics
- Assessing model performance using accuracy, precision, recall, and F1-score.
- Confusion matrix and ROC curves.