

# 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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**Websites:** [www.Codersarts.com](http://www.Codersarts.com) | [www.training.codersarts.com](http://www.training.codersarts.com) | [www.ai.codersarts.com](http://www.ai.codersarts.com)

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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.

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# Cat vs Dog Image Classification (using CNN)

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## About the Course:

This course is a hands-on program designed for individuals interested in computer vision and deep learning. In this course, participants will dive into the fascinating world of image classification, specifically focused on distinguishing between cats and dogs in images. Students will learn how to build Convolutional Neural Network (CNN) models, a powerful class of deep learning models for image-related tasks, and apply them to real-world scenarios. By the end of the course, participants will have the knowledge and skills to create their own image classification models and tackle similar computer vision challenges.

## Learning Outcomes:

Upon completing this course, participants will:

- Gain a solid understanding of computer vision concepts and image classification.
- Master the Python programming language for deep learning applications.
- Become proficient in creating Convolutional Neural Network (CNN) architectures.
- Learn data preprocessing techniques for image data.
- Build and train CNN models for binary classification (cat vs. dog).
- Apply transfer learning using pre-trained CNN models like VGG16 or ResNet.
- Evaluate model performance and use relevant metrics.
- Understand best practices for data augmentation and handling imbalanced datasets.
- Be equipped to work on image classification projects beyond the scope of this course.

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## Prerequisites:

- Basic programming knowledge, preferably in Python.
- Familiarity with fundamental machine learning and deep learning concepts is helpful but not required.
- Access to a Python development environment with libraries such as TensorFlow or PyTorch for deep learning, NumPy for data manipulation, and Matplotlib for visualization.

## Libraries and Programming Language Used:

- Python for coding and scripting.
- TensorFlow or PyTorch for building and training deep learning models.
- NumPy for data manipulation.
- Matplotlib for data visualization.

## Course Syllabus:

### Introduction to Image Classification and CNNs

- Overview of image classification tasks.
- Understanding the architecture and components of Convolutional Neural Networks (CNNs).

### Setting Up the Development Environment

- Installing Python and required libraries.
- Preparing the development environment for deep learning projects.

### Cat vs. Dog Dataset

- Introduction to the dataset.
- Data exploration and visualization.

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### **Data Preprocessing**

- Data loading and transformation.
- Data augmentation techniques to enhance the dataset.

### **Building a CNN Model**

- Designing a CNN architecture for binary classification.
- Configuring and compiling the model.

### **Training the Model**

- Preparing the dataset for training and validation.
- Training the CNN model.
- Monitoring training progress and avoiding overfitting.

### **Model Evaluation and Metrics**

- Assessing model performance using accuracy, precision, recall, and F1-score.
- Confusion matrix and ROC curves for binary classification.
- Making predictions