Welcome!

<https://aws.amazon.com/sagemaker/>

Welcome to **Object Detection with Amazon Sagemaker**. This is a project-based course which should take approximately 2 hours to finish. Before diving into the project, please take a look at the course objectives and structure:

Course Objectives

In this course, we are going to focus on **three** learning objectives:

1. Prepare data for Sagemaker Object Detection
2. Train a model using Sagemaker
3. Deploy a model using Sagemaker

By the end of this course, you will be able to create, train and deploy SSD Object Detector using Sagemaker!

Course Structure

This course is divided into 3 parts:

1. Course Overview: This introductory reading material.
2. **Object Detection with Amazon Sagemaker:**This is the hands on project that we will work on in Rhyme.
3. Graded Quiz: This is the final assignment that you need to pass in order to finish the course successfully.

Project Structure

The hands on project on **Object Detection with Amazon Sagemaker** is divided into following tasks:

Task 1: Create Notebook Instance

* Introduction the Sagemaker
* Creating a Notebook instance

Task 2: Annotations

* Downloading and extracting the IIIT-Oxford Pets Dataset
* Extracting the annotations
* Creating a training and a validation set

Task 3: Visualize the Data

* A quick look at some of the images and their corresponding bounding boxes

Task 4: Training Image for the Algorithm and Sagemaker Setup

* Getting the Sagemaker execution role
* Getting reference to the object detection training image

Task 5: Prepare Data for Sagemaker

* Preparing data for object detector with the right folder structure and annotation files

Task 6: Uploading Data to S3

* Creating an S3 bucket
* Uploading the data to the bucket

Task 7: Sagemaker Estimator

* Creating an Estimator

Task 8: Hyperparameters

* Setting up the hyperparameters for the object detector

Task 9: Data Channels and Model Training

* Creating the S3 Input data channels
* Training the Model

Task 10: Deploy Model

* Deploying the model

Task 11: Inference and Deleting the Endpoint

* Using the deployed model for inference
* Deleting the deployed endpoint

Meet the Instructor

Amit is a Machine Learning Engineer with focus in creating deep learning based computer vision and signal processing products. He has led chat bot development at a large corporation in the past. Amit is one of the Machine Learning and Data Science instructors at Rhyme.

About Rhyme

This course runs on Coursera's hands-on platform called Rhyme. On Rhyme, you do projects in a hands-on manner in your browser. You will get instant access to pre-configured cloud desktops that have all the software and data you will need. So, you can just focus on the learning. For this project, this means instant access to a cloud desktop with Python, Jupyter, and TensorFlow pre-installed.