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Artificial Intelligence

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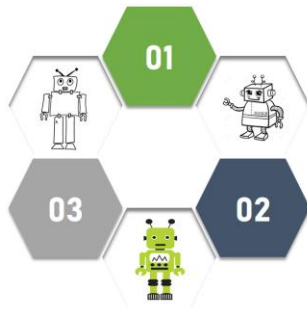
- What is AI ?
- Where is it used ?.
- Why is AI best ?
- About course.
- Course contents.



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What is AI ?

Machine that exhibits traits associated with a human mind such as learning and problem-solving



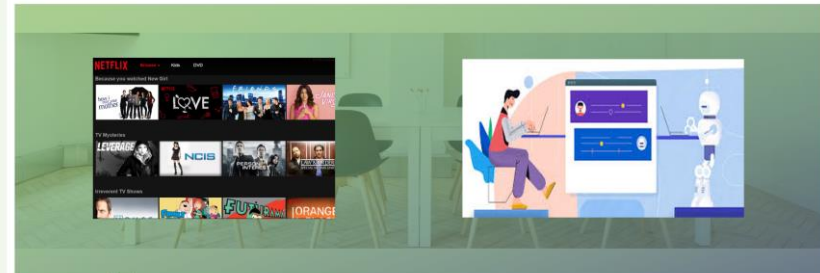
Techniques which allow computers to mimic human intelligence

Uses logic , decision tree , and machine learning

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Where is AI used ?



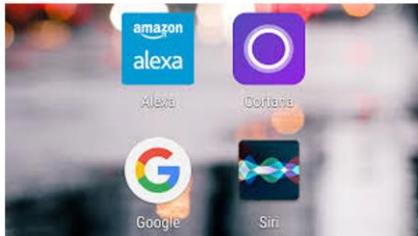
Netflix Recommendations

Chat bots

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Where is AI used ?



Personal Assistance



5

Why should we focus on AI ?



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AI Software market revenues worldwide in 2018 **10.1bn USD**

Growth of the global AI market in 2019 **54%**

AI's contribution to china's GDP in 2030 **26.1%**

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Course Objectives

Upon completion of this course, students will be able to:

- Describe machine learning (ML)
- Implement a machine learning pipeline using Amazon SageMaker
- Use managed Amazon ML services for forecasting
- Use managed Amazon ML services for computer vision
- Use managed Amazon ML services for natural language processing

Duration

Approximately 20 hours when delivered synchronously by an educator.

Intended Audience

This introductory course is intended for students at AWS Academy member institutions interested in pursuing a career in data science, ML, and AI.

Student Prerequisites

To ensure success in this course, students should have:

- General IT technical knowledge
- General IT business knowledge
- Experience scripting with Python or equivalent
- A basic understanding of statistics

Delivery Methods

This course can be delivered in person with synchronous lectures or with digital training modules that students can complete independently, or a combination of in-person and digital instruction (flipped-classroom model).



Course Contents

		# Slides/ Lecture & Demo Duration	Lab Duration	Total Duration
Module 1 – Welcome to AWS Academy Machine Learning Foundations		21/30 min.		30 min.
Lecture or Video	Course prerequisites and objectives			
Lecture or Video	Machine learning job roles			
Lecture or Video	Resources, documentation, and whitepapers			
Module 2 – Introducing Machine Learning		48/120 min.		120 min.
Lecture or Video	What is Machine Learning?			
Lecture or Video	Business problems solved with Machine Learning			
Lecture or Video	Machine Learning process			
Lecture or Video	Machine Learning tools overview			
Lecture or Video	Machine Learning challenges			
Demo	Demonstration: Introducing Amazon SageMaker	10 min.		
Knowledge Check	Machine Learning Concepts	10 min.		
Module 3 – Implementing a Machine Learning pipeline with Amazon SageMaker		132/230 min.	200 min.	430 min.
Lecture or Video	Scenario introduction			
Lecture or Video	Collecting and securing data			
Guided Lab	Exploring Amazon SageMaker		30 min.	
Lecture or Video	Evaluating your data			
Guided Lab	Visualizing Data		30 min.	
Lecture or Video	Feature engineering			
Guided Lab	Encoding Categorical Variables		30 min.	
Lecture or Video	Training			
Demo	Demonstration: Training a Model Using Amazon SageMaker	10 min.		
Guided Lab	Splitting Data and Training a Model using XGBoost		30 min.	
Lecture or Video	Hosting and using the model			
Guided Lab	Hosting and Consuming a Model on AWS		20 min.	

		# Slides/ Lecture & Demo Duration	Lab Duration	Total Duration
Lecture or Video	Evaluating the accuracy of the model			
Guided Lab	Evaluating Model Accuracy		30 min.	
Lecture or Video	Hyperparameter and model tuning			
Demo	Demonstration: Optimizing Amazon SageMaker Hyperparameters	10 min.		
Demo	Demonstration: Running Amazon SageMaker Autopilot	10 min.		
Guided Lab	Tuning with Amazon SageMaker		30 min.	
Knowledge Check	Machine Learning pipeline implementation	10 min.		
Challenge Lab 1 Class Project – Select and Train an algorithm				300 min.
Module 4 – Introducing Forecasting		38/60 min.	60 min.	120 min.
Lecture or Video	Forecasting overview			
Lecture or Video	Processing time series data			
Lecture or Video	Using Amazon Forecast			
Demo	Demonstration: Creating a Forecast with Amazon Forecast	10 min.		
Guided Lab	Creating a Forecast with Amazon Forecast		60 min.	
Knowledge Check	Managed Services for Forecasting	10 min.		
Module 5 – Introducing Computer Vision (CV)		56/60 min.	60 min.	120 min.
Lecture or Video	Introducing Computer Vision			
Lecture or Video	Analyzing image and video			
Demo	Demonstration: Introducing Amazon Rekognition	10 min.		
Lecture or Video	Preparing custom datasets for computer vision			
Demo	Demonstration: Labeling images with Amazon Ground Truth	10 min.		
Guided Lab	Facial Recognition		60 min.	
Knowledge Check	Computer Vision	10 min.		
Module 6 – Introducing Natural Language Processing		37/ 60 min.	60 min.	120 min.
Lecture or Video	Overview of Natural Language Processing			
Lecture or Video	Natural Language Processing managed services			
Demo	Demonstration: Introducing Amazon Polly	10 min.		
Demo	Demonstration: Introducing Amazon Comprehend	10 min.		
Demo	Demonstration: Introducing Amazon Translate	10 min.		
Guided Lab	Create a bot to schedule appointments		60 min.	
Knowledge Check	Natural Language Processing	10 min.		
Module 7 – Course Wrap-Up		11/ 30 min.		30 min.
Lecture or Video	Course summary			
Lecture or Video	AWS documentation			
Lecture or Video	AWS Certified Machine Learning - Specialty			