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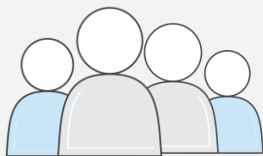
The screenshot shows the Amazon.com homepage. At the top, there's a navigation bar with the Amazon logo, search bar, and links for Sign In, Try Prime, and Wish List. Below the navigation bar, there's a large banner for "JUMPSTART GOOD HABITS" featuring a woman reading on a couch, with the text "kindle \$79". Below the banner, there's a row of movie covers including "Catching Fire", "Anchorman 2", "The Last Legion", "Frankenstein", "Star Trek Into Darkness", "Jack Reacher", "Annie", "The Conjuring", and "The Willy Wonka & Chocolate Factory". To the right of the movie covers is a promotional box for Amazon Prime Instant Video, stating "Instantly watch unlimited movies & TV shows" and "Start Free Trial". Below the movie covers, there's a section titled "Commute in Comfort" with a link to "See more", showing various car accessories like a Garmin GPS, a car charger, and a car seat.



Traditional Infrastructure



Equipment



Resources and Administration



Contracts



Cost

AWS Cloud



**No Up Front Expense
Pay for what you Use**



**Improve Time to
Market & Agility**



**Scale Up and
Down**



**Self-Service
Infrastructure**



What Is (True) Cloud Computing?



The on-demand delivery of IT resources over public or private networks with zero up-front costs, no long-term contracts, and pay-as-you-go pricing

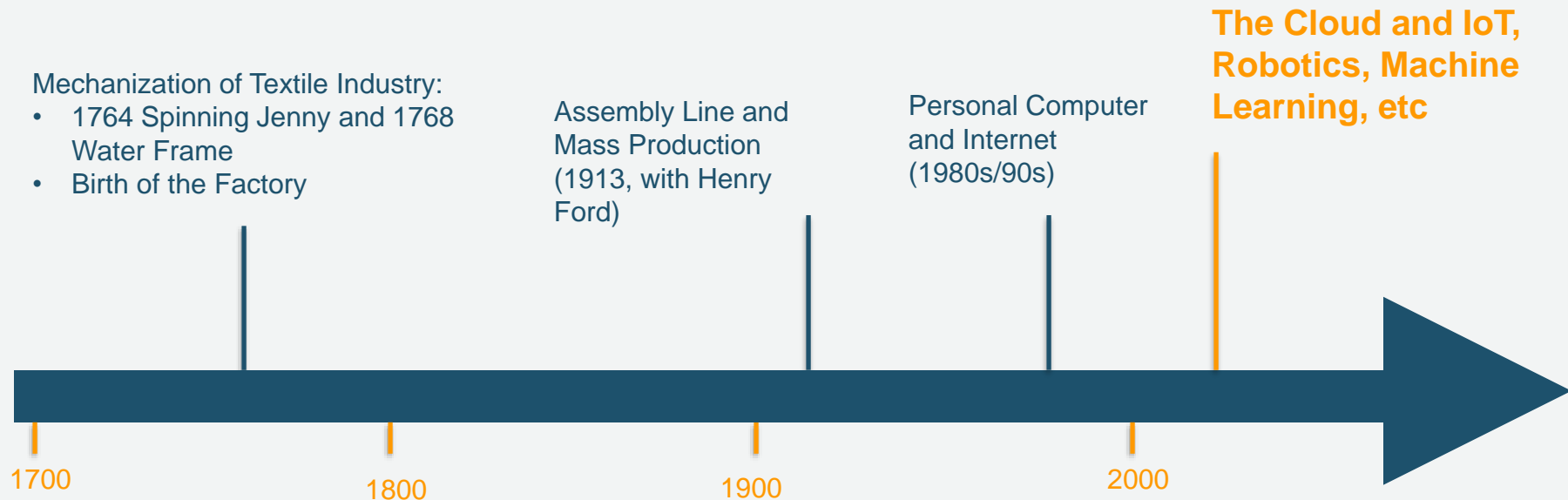
Millions of active customers every month



HOW DOES THE CLOUD IMPACT WORKFORCE?



We're in the middle of the 4th industrial revolution



“Cloud Computing” has been the #1
LinkedIn skill for two years in a row¹

And millions of jobs
in the Cloud!

Average AWS Certification Salary²:

AWS Certified Developer, Associate: \$138k

AWS Certified Solutions Architect, Associate: \$115k

AWS Certified SysOps Admin, Associate: \$108k

What is Amazon Doing to Address the Skills Gap?

Programs at AWS

Teaching and Learning

- AWS Educate: self-paced learning and access to AWS technology that leads to specific job roles and a job board
- AWS Academy: prescriptive AWS curriculum delivered by institution that has a pathway to industry-level certification

Research on AWS

- AWS Research Cloud Program: built by AWS scientists to enable easy use of AWS resources by their fellow researchers in the scientific community.
- Public Datasets: a catalogue of globally important research sets hosted on AWS that can be leveraged by researchers
- AWS Cloud Credits for Research: Grant based program to support researchers building cloud-based POCs or research tools and benchmarks.

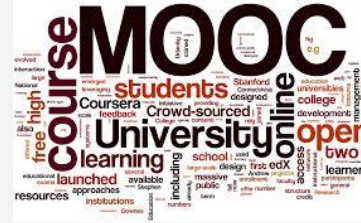
Entrepreneurship

- AWS Activate, CloudStart, EdStart: aimed at supporting new companies building their products on AWS through credits and technical assistance
- AWS Lumberyard: Free 3-D Game engine that can be leveraged by game developers and digital media students to develop their ideas.

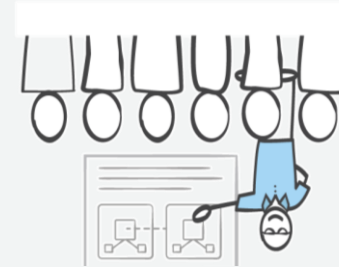


Teaching Tomorrow's Cloud Workforce Today

Pedagogy is beginning to modernize



+ Flipping the Classroom



Note: Word cloud images found on Google image search (eg. "social learning").

Mass educational institutional demand

2000+
Educational
Institutions

**Over 10,000
educators**
have enrolled in
AWS Educate

QS World University Rankings by Subject 2016 - Computer
Science & Information Systems

**Hundreds of
Thousands**
of Students
from over
200 countries

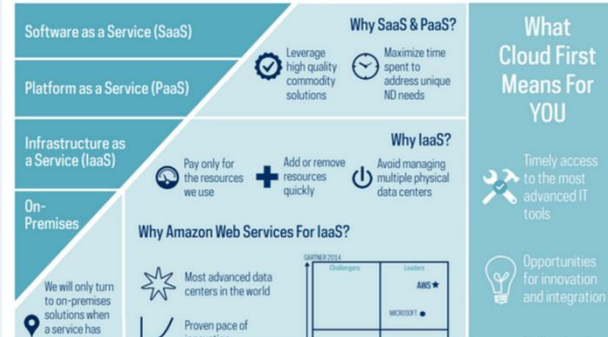
Sampling of global member schools



Universities All-In on AWS



Notre Dame is going "cloud first" with a goal of 80% IT service portfolio in next 3 years ntrda.me/1EckVBb



5:16 PM - 7 Nov 2014

Harvard Cloud Services

Also known as: Amazon, AWS, Amazon Web Services, Elastic Compute Cloud, EC2, Simple Storage Service, S3.



Description

Amazon Web Services (AWS) for Harvard is the first deliverable of the [Harvard Cloud & DevOps Program](#) and provides a framework for accessing Amazon Web Services. AWS was selected as the anchor provider because of its significant user base in the Harvard Community and its prominence in the public cloud services market. Harvard has recently signed an enterprise-wide agreement with Amazon to provide cloud-based services to the Harvard community and to deliver a simple and efficient process to procure services in the "Cloud" at the most economical rate for Schools and Departments.

In the future, these capabilities may be extended to include other public cloud service providers (such as Google, Azure, or RackSpace) and internally built private cloud services based on user requirements and customer needs.



University Workloads

Academic Admin

- Data Center migration to Cloud
- Disaster Recovery
- Electronic Medical Records
- Facilities Maintenance
- Scientific Analysis
- Lab Management
- Scientific Computing
- Public websites
- High Performance Computing

University Admin

- HR System
- LMS System
- Lecture Capture System
- Library Management System
- Online course delivery
- Online course evaluations
- Parking
- Payroll
- Financial System
- Grant Management

Student Experience

- Course Catalog
- Student Information System
- Student Recruiting System
- Teaching and Learning
- Virtual Desktops
- Event Systems
- Document Storage and Sharing
- Student and Employee portals

AWS Educate value proposition



Open course
content



Grants for free
access to AWS



Micro-Credentials



Professional
development















Communities of
collaboration



Job and
internship board

AWS Educate: 12 learning pathways and ...

 <p>Cloud Computing 101</p> <p>Take a crash course on the cloud, its history, solutions, and why companies across the globe are looking for employees with AWS cloud expertise.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>Application Developer</p> <p>Curious how App Developers design, test, and improve engaging web and mobile applications in the cloud? Learn more about the skills you'll need.</p> <p>START ▶ LEARN MORE ▶</p>	 <p>Cloud Support Associate</p> <p>If you're excited by the future of cloud computing and enjoy working directly with customers, learn more about becoming a Cloud Support Associate.</p> <p>COMPLETED LEARN MORE ▶</p>	 <p>Cloud Support Engineer</p> <p>Interested in multiple technologies and working with companies to support AWS cloud solutions? Learn more about becoming a Cloud Support Engineer.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>
 <p>Cybersecurity Specialist</p> <p>Cybersecurity Specialists use expertise in networking, programming, and coding to protect customer data every day. Learn more about the skills they use.</p> <p>START ▶ LEARN MORE ▶</p>	 <p>Data Integration Specialist</p> <p>Excited about bringing data sources together to tell the story of a product's performance? Discover ways to build and improve products through data.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>Data Scientist</p> <p>Curious how discovering patterns in large data sets can translate into new business strategies? Learn more about how Data Scientists do this every day.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>DevOps Engineer</p> <p>If you like working behind the scenes to tackle challenges and are curious about skills like scripting and coding, learn more about becoming a DevOps</p> <p>START ▶ LEARN MORE ▶</p>
 <p>Machine Learning Scientist</p> <p>Curious how artificial intelligence and predictive modeling are used to create dynamic experiences? Learn more about becoming a Machine Learning Scientist.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>Software Development Engineer</p> <p>If you're a builder who wants to learn more about using software engineering principles to design original applications, explore the skills you'll need.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>Solutions Architect</p> <p>Curious how Solutions Architects deliver strategic, scalable AWS cloud infrastructures to their customers? Learn more about the skills they use every day.</p> <p>CONTINUE ▶ LEARN MORE ▶</p>	 <p>Web Development Engineer</p> <p>If you're interested in developing innovative web experiences through software design and programming, learn more about the skills you'll need.</p> <p>START ▶ LEARN MORE ▶</p>

AWS Educate: and 7 badges



Cloud Literacy (Inventor)

The AWS Educate Cloud Literacy Badge for Inventors is for students who are starting to learn about computer science and the cloud. This badge will introduce you to the cloud through an adventure where a school grading system has been hacked and teach you about the fundamentals of the cloud.

EARN YOUR BADGE



DeepLens Badge

DeepLens is a fully programmable video camera that comes with code and pre-trained models designed to expand your deep learning knowledge and skills! Hear directly from professionals in this field, complete activities and review reference materials to learn more about DeepLens and how you can start using the device for your projects or research.

EARN YOUR BADGE



Gaming Badge

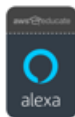
The AWS Educate Gaming Badge leads you on a guided tour of AWS gaming tools. Through hands-on activities learn how to build a game environment, design a character and create multiplayer functionality.

EARN YOUR BADGE



Startup Badge

The AWS Educate Startup Badge exposes you to real-world application and use cases of AWS to jumpstart and scale startups' deployment efforts. You'll explore strategies to scale your platform, secure and distribute content and ways to improve your elevator pitch.



Alexa Badge

Alexa is Amazon's cloud-based voice service available on tens of millions of devices from Amazon and third-party device manufacturers. You can use Alexa to build natural voice experiences to interact with devices and technology in a more intuitive way to interact with the technology they use every day.

EARN YOUR BADGE



IoT Badge

The AWS Educate IoT Badge provides you with an introductory exploration of IoT and AWS. Learn how networked connectivity of devices, systems, and services is changing the world around us.

EARN YOUR BADGE



American Heart Association: PMP Badge

AWS Educate collaborated with the American Heart Association to bring learners visibility into the AHA Precision Medicine Platform, a cloud-based solution that streamlines access to datasets and provides secure workspaces with state-of-the-art tools for data analysis.

Students Using AWS Educate – ASEAN 100 Hackathon

- NUS and SP students leveraged AWS Educate to build stunning prototypes to solve regional problems
- The winner, Dr Robo was an on-demand prescription dispensing prototype
- Leveraging AWS technologies includes AWS IoT Button, AWS Lambda, S3, EC2, SNS



Dr. Robo



Mosbins





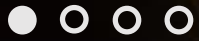
Case in Point - Philippines

Vincent Quah

Regional Head – Education, Research, Healthcare and Not-For-Profit Organizations

Worldwide Public Sector, Asia Pacific and Japan

Amazon Web Services



Cloud Industry Trends and Skills Gap in PH

LABOR FORCE SURVEY REPORT DATA:

- Unemployment for youths comprises over half of the unemployed. 47.5% share (961,000). Youth unemployment slightly increased by 0.4 percentage points year-on-year.
 - College graduates had a high unemployment rate (6.3%), compared to those that had elementary (2.8%) and junior high school education (5.2%)...
 - This implies that “there is a **skills mismatch**, where the available jobs in the labor market do not match the skills of college graduates (e.g. college graduates are not ‘employable’ or don’t have job-ready skills)”.
 - Similar trends were reported on the LBS every year.
- Unemployment is high for youths... and notably high for educated youths.
 - A considerable proportion of the unemployed are college graduates.
 - This has been the case for several years.

Source: Institute for Labor Studies, Philippines Statistics Authority, LABOR FORCE SURVEY REPORT, October 2017
<http://ilsdole.gov.ph/labor-force-survey-reports/>

Cloud Computing has become the New Normal

Millions of active customers across all business sizes are using AWS Cloud services every month in over 190 countries

AWS is the fastest enterprise IT vendor to reach a \$10 Billion run-rate

Source: Enterprise IT vendors are those listed in the 2015 Fortune 500 Computer Software and Computer Peripherals categories

Deploying new applications to the cloud by default

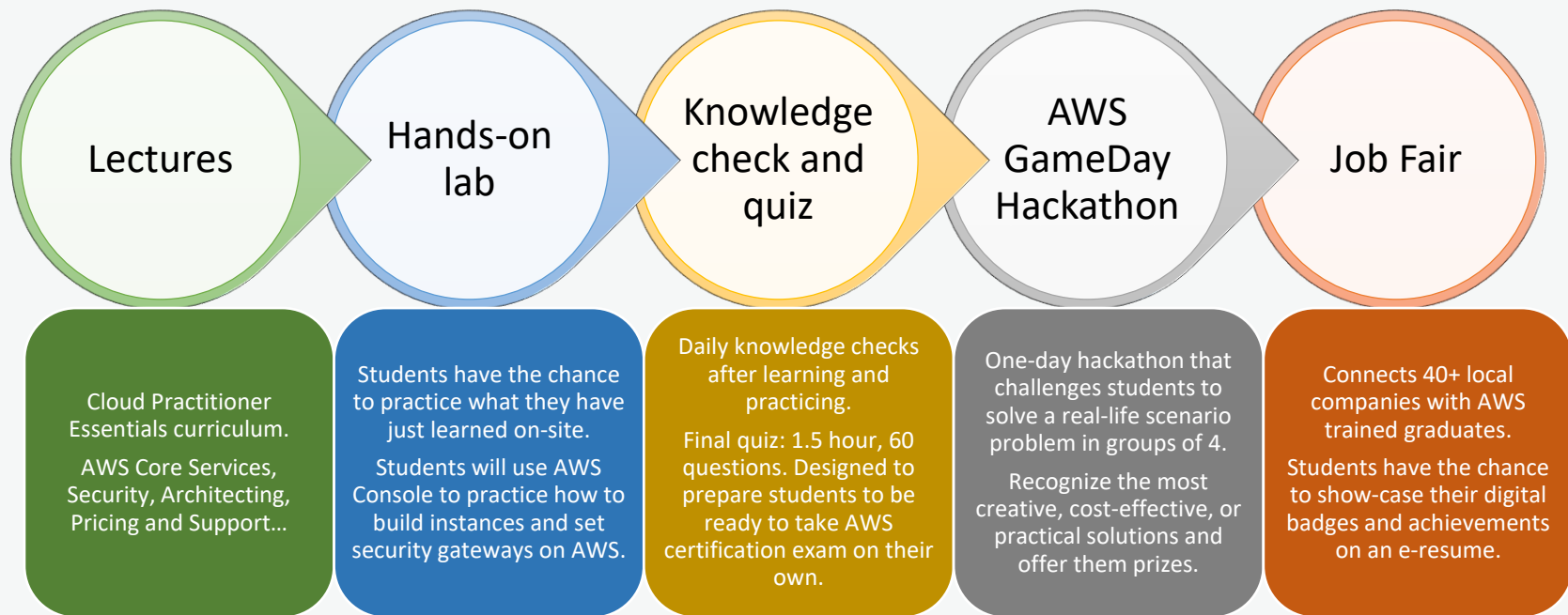


Migrating existing applications as quickly as possible



Highlights of AWS Siklab Pilipinas 2018

What's in AWS Siklab Pilipinas model?



Siklab Pilipinas provides students and educators:



Students

- Certification of completion of AWS Siklab Pilipinas;
- Certification of passing AWS Siklab Pilipinas quiz;
- Prizes for winning AWS GameDay Hackathon;
- Badges to attach on e-resumes to present to future employers;
- AWS Training on Cloud Practitioner Essentials;
- AWS Educate accounts that offer open content cloud computing learning materials and credits to use AWS Console



Educators

- AWS Training on Cloud Practitioner Essentials;
- AWS Educate accounts that offer professional development materials and open content cloud computing materials;
- AWS credits to use AWS Console every year;
- Opportunity to join AWS Academy; receive training and become certified on Associate Cloud Architect
- Be the AWS Academy point of contact to train other educators and start teaching this course.

AWS Siklab Pilipinas 2018:

First in the world to ignite the spark in young Filipinos' hearts with AWS cloud computing skills.



YouTube: <https://youtu.be/nAnB8JJxjC4>
I want to be somebody:
https://www.youtube.com/watch?v=EvsoB_uq9M&list=PLzyxeFuJqXW2vbjc-NRjf2cMnZa5rEDIT&index=4&t=0s

First in the World!

AWS Siklab Pilipinas 2018

- 100 educators and 400 students attended and completed AWS Cloud Computing Bootcamp training and AWS GameDay;
- Event covered 90 institutions (university/college/polytech) in NCR;
- 31 companies attended Siklab job fair: Accenture, Robinsons Supermarket Corp, Philippine Airlines, Globe, Valueline, ISR, Cebu Pacific...;
- 1577 interviews conducted on-site between employers and students; 271 students out of 400 attendees pass first round of interview;
- District Director Rolando V. Dela Torre announced that Siklab is recognized as a high-quality skills training event, and Siklab trained students will be rewarded National Certificates of Training by the National Technical Committee in NCR.

- 2 phases:
 - Pre-event training (May 28th – 30th, 3 Days)
 - AWS Siklab Pilipinas (June 4th – 7th, 4 Days) for
- 4 components:
 - AWS Cloud Practitioner Essentials lecturing with cloud demos and hands-on labs
 - AWS Siklab Pilipinas competency exam
 - AWS GameDay hackathon challenge
 - Job Fair



AWS Gamified Hackathon

– A cont'd Siklab for Y4iT



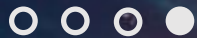
Cloud Computing Bootcamp:
Learn about AWS storage,
network, database, application, &
security



AWS Gamified Challenge:
Accept a real world challenge
and show us what you've got!



Build a Cool Web App:
Take the pieces and practice
architecting on cloud!



Event Outcome: Help the Next Generation to be Ready for Philippines' Future Jobs

Continuing Siklab to Teach Tomorrow's Workforce Today

- Following the success of AWS Siklab Pilipinas 2018, AWS Gamified Hackathon expands its scope to reach to 3500 students in NCR PH.
- Providing students with real life challenges and experiences: build web-app and products in cloud environment; learn how to architect on cloud; and solve a real-life scenario challenge.
- Preparing students to be more job ready; and introducing students to learning platforms like AWS Educate.



Case in Point – AWS investments in Indonesia

List of initiatives and supports

- AWS Educate launched Bahasa Indonesia version in Feb 2019;
- Supporting Ministry of Education and Culture on a National Curriculum Reform, kicked off in Malang March 2019;
- Graduating 5,000 AWS Cloud Practitioners through Ministry of Communication and Information Technology's Digital Talent Scholarship Program 2019;
- Running Cloud Computing Bootcamp for Top 9 Universities with Ministry of Research, Technology and Higher Education;
- AWS Educate is joining force with Creative Economy Agency to on-boarding thousands of coders and programmers to be cloud proficient;

Supporting National Curriculum Reform

- Ministry of Education and Culture and Coordinating Ministry of Economic Affairs are partnering with AWS Educate to help cloudify national curriculum for all secondary vocational schools, with a pilot in East and West Java among 18 Secondary Vocational Schools (SMK);
- MOEC plans to roll this out nationwide in 2019, and make AWS cloud content mandatory for all secondary vocational schools.

- Pilot kicked off in East Java (Malang SMK 11) in March 2019
- The pilot will include 500 people (students and teachers), and they will be graduating in May



KOMINFO – Digital Talent Scholarship Program (DTS)

- After 2018's success, Ministry of Communication and Information Technology (KOMINFO) launched 2nd batch of Digital Talent Scholarship Program early 2019 to upskill unemployed youths;
- KOMINFO is partnering with AWS to graduate 5,000 youths with AWS certifications at the Practitioner level;
- AWS Educate and AWS Training and Certification teams will provide online programs for 3000 people and offline programs for 2000 people specifically on IoT, ML, AI, and Big Data;
- DTS kicked off in March 2019, program will be running until Q4, with offline training activities happening in Q3, and graduating 5,000 youths by end of year.

Digital Talent Scholarship

AWS Educate Online & Offline Courses

Offline Courses



Internet of Things



Machine Learning

Online Courses



Big Data



**Artificial Intelligence
with Alexa & DeepLens**

Digital Talent Scholarship **AWS Educate Offline Courses**

Internet of Things (IoT)

Course Overview: AWS Educate IoT course provides you with an exploration of IoT and AWS. Learn how networked connectivity of devices, systems, and services is changing the world around us.

Prerequisites:

AWS Educate Cloud Computing 101

Machine Learning (ML)

Course Overview: ML creates the products of the future. Learn to design algorithms, develop predictive data models that result in new features and enhancements that delight customers. You'll be introduced to the skills including distributed systems, programming, scripting and data analytics.

Prerequisites:

AWS Educate Cloud Computing 101
Basic Programming Knowledge

Digital Talent Scholarship **AWS Educate Online Courses**

Big Data

Course Overview:

Learn to develop creative solutions to combine data from multiple locations into one place. This enables businesses to look at the big picture to better understand how to improve and develop new products. You'll be introduced to the skills and knowledge to help companies grow through data integration and automation.

Prerequisites:

AWS Educate Cloud Computing 101

Artificial Intelligence with Alexa & DeepLens

Course Overview: Understand the difference between Artificial Intelligence, Machine Learning & Deep Learning, and apply this knowledge to start building new skills with the Alexa Skills Kit & new Machine Learning models for AWS DeepLens.

Get introduced to how you can build your very own Voice User Interface with ASK and understand the workings of an Alexa skill. Expand your deep learning knowledge and skills through DeepLens, a fully programmable video camera that comes with code and pre-trained models.

Prerequisites:

AWS Educate Cloud Computing 101
AWS Educate Machine Learning

Offline Course I: Internet of Things (IoT)

Lab Requirements:

- Virtual: AWS Educate IoT lab
- In-person: 1 laptop/desktop per student, high speed internet access at all times during in-person training.

Benefits:

- Explore IoT in AWS cloud environment with hands-on experience.
- Manage and learn how networked connectivity of devices, systems, and services is changing the world around us.
- Benefit from the lab environment where you could explore and experiment with AWS credits within AWS Console.

Learning Components/Modules:

- AWS General - An Engineer's Tour of the Internet of Things
- Application Services – Configuration, Creating a Device in the Thing Registry, Building Apps for Mobile, Gaming, IoT, and more using AWS DynamoDB, Security and Identity for AWS IoT, Best Practices for Building IoT Backends with AWS IoT & AWS Lambda, and etc.
- AWS Database - Creating a DynamoDB Rule
- Start-Up IOT: Reliable Commands, Telemetry on the Cloud, and etc.

Time to Complete: 6-8 hours of in-person training with 30 hours of self-paced online learning and lab sessions

Offline Course II: Machine Learning

Lab Requirements:

- Virtual: AWS Educate ML lab
- In-person: 1 laptop/desktop per student, high speed internet access at all times during in-person training.

Benefits:

- Define Machine Learning and related terminology
- Outline the Machine Learning process
- Summarize the AWS Machine Learning suite of services
- Identify necessary tools and frameworks used in Machine Learning
- List core competencies needed to be successful in the field of Machine Learning
- Identify jobs and careers in the Machine Learning field

Learning Components/Modules:

- What is machine learning - Artificial Intelligence on AWS; AI vs. ML
- AWS ML Services: The AWS ML Stack, API-based Services for Developers, Platform Services, Frameworks and Infrastructure
- Core competencies and resources: Knowledge and Skills, Amazon Services Competencies, Extend your AI Reach

Time to Complete: 6-8 hours of in-person training with 30 hours of self-paced online learning and lab sessions

Online Course I: **Big Data**

Lab Requirements:

- Virtual: AWS Educate lab

Benefits:

- Explore big data topics including data architecture as well as techniques and tools for analysis, streaming and visualization.
- Learn and practice data and data structures, data warehouses and lakes, as well as relational and non-relational data types
- Different scripting languages including Java, Python, Javascript, Ruby, and using the command line interface

Learning Components/Modules:

- Big data introduction & overview: Big Data Analytics, Big Data Architecture, Big Data and HPC, Big Data and Visualization, Big Data and Streaming
- Data and databases: Data Structures, Data Management and Data Migration, Data Warehouses and Data Lakes, Relational, Non-relational
- Software Development: Programming and Scripting: - C, C#, C++, .NET, Java, Python; Scripting: CLI, Javascript, PHP, Powershell, Ruby

Time to Complete: 35 hours of self-paced online learning and lab sessions

Online Course II: **Artificial Intelligence**

Lab Requirements:

- Virtual: AWS Educate Alexa and DeepLens lab

Benefits:

- Learn and build skills with Alexa and expand your deep learning knowledge and skills through DeepLens
- Learn how to use successfully set up an S3 bucket; a Lambda function;
- Identify one or more use cases on how to use an Alexa skill
- Understand Alexa Skills Kit; Identify what skill(s) to build
- Properly design for voice using checklist and best practices; Build and test a skill using provided tutorials
- Learn about and to manage AWS DeepLens

Learning Components/Modules:

- Introduction: what can you do with Alexa? What is DeepLens? What do I need to know?
- Alexa Skills Kit & Resources
- Getting Started: Building Projects, Extending AWS DeepLens Projects, Working with SageMaker
- Managing your AWS DeepLens Device: Securely Boot Your AWS DeepLens Device, Update Your AWS DeepLens Device, Deregister Your AWS DeepLens Device, Logging and Troubleshooting, AWS DeepLens - Library and Document History

Time to Complete: 35-40 hours of self-paced learning and lab sessions

Cloud Computing Bootcamp for Top 9 Universities

- Building on the success of Institut Teknologi Bandung (ITB) Cloud Computing Bootcamp for 500 students Oct. 2018, Ministry of Research, Technology and Higher Education (DIKTI) decided to continue to partner with AWS and replicate this model to launch cloud computing bootcamp in 9 top universities in Indonesia.
- Each university bootcamp will cover 400-500 students. AWS Educate and Training will provide 2-3 days Bootcamp agenda to each university; it's kicking off in Q2 2019.
- Accumulatively, AWS is looking to cover 4,500 students.



ITB Cloud Computing Bootcamp 2018:
500+ students from **10+ universities**
attended; Co-organized with **GO-JEK**



Coders and Programmers Day

- AWS Educate is joining force with Creative Economy Agency (BEKRAF) to on-boarding thousands of coders and programmers to be cloud proficient;
- Initiative kicked off already, AWS Educate will join the coders and programmers day on a monthly basis, covering locations such as Semarang, Samarinda, Malang and etc.

Thank You

shagao@amazon.com