Cloud App Development – Learning Objectives

Aug 18, 2022

Cloud App Development – Learning Objectives

Pre-Requisites

- Open-Source Software Development Methods
- Linux for Developers
- Working at the command line
- Filesystem layout, partitions
- Monitoring utilities
- Linux Tools for Developers
- Building packages out of software in Linux
- How to make changes in a repository
- How to make changes in repositories available to others
- How to acquire changes made by other individuals
- How to find errors in your work and go back to earlier states of your projects
- How to make commits, diffs, merges, rebases

Outcomes

- Design an ASP.NET Core MVC Web Application
- Work with Java data types: primitives, operators, type promotion and casting
- Control program flow using loops, if/else, and switch statements
- Work with arrays and collections
- Develop secure code in Java to mitigate security threats
- Learn Java Platform Module System: declare, use, and expose modules
- Object-oriented approach using classes, Inheritance, Interfaces, and variable scopes
- Understand the importance of and utilize polymorphism and casting to call methods
- Work with streams and lambda expressions to filter, transform and process data

Certification Opportunities

- Introduction to Server-Side Development
- Data Storage with NoSQL
- User Authentication
- Secure Communication using HTTPS
- Full stack web development with React
- Group Server Project
Pre-Requisites

- College Algebra transcripts or Math placement test available online

Outcomes

- Analyze network architecture, standards, security & protocols
- Deploy Linux/Win OS apps
- Architect cloud solutions
- Develop skills in scripting & automation

Certification Opportunities

- CSC 235: Introduction to Linux
- CompTIA Linux+ Exam Preparation

- CSC 331: Windows Server Configuration and Management (IAM/Linux Admin LDAP/Active Directory)
- Install/config. domain controllers, AD CS, AD FS, & AD RMS
- Create/manage AD users, groups, OUs, & computers
- Configure service authentication & account policies
- Maintain Active Directory
- Understand LDAP and IAM with Linux Administration
- Configure AD in a complex enterprise environment
- Create and manage GPOs
- Config Group Policy processing, settings & preferences
- Manage certificates & Implement WAP

- CSC 160: Computing Technologies (Introduction to Computer Science)
- Provision and maintain Linux Infrastructure
- Gain an understanding of Linux commands and architecture
- Work at the command line to install, update, and configure system components
- Understand fundamentals of system security, performance, and maintenance
- Explore the implementation of tools for automating these practices

- CSC 330: Networking and Server Fundamentals
- CompTIA Network+ Exam Preparation
- Introduce the OSI Model
- Understanding: LAN, Wired & Wireless Networks, IP, & WAN
- Defining Network Infrastructure & security
- Install and configure DNS servers & IPAM
- Create and configure DNS zones & records
- Install, configure and manage DHCP
- Implement: Network VPN connectivity solution
- IPv4/IPv6 addressing solutions, VLSM, subnetting
- Develop high-performance network solutions
- Identify scenarios/requirements for implementing SDN

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- CSC 332: Configuring Advanced Windows Server Services (Linux/Win 2022)
- Use administrative techniques and tools in WS2022 and Linux
- Implement identity services
- Manage network infrastructure services
- Configure file servers and storage
- Manage VMs using Hyper-V virtualization & containers
- Apply security features to protect critical resources.
- Configure Remote Desktop Services
- Implement remote access and web services
- Implement service/performance monitoring & apply troubleshooting

- CSC 356: Configuring and Deploying Cloud Technologies
- AWS Certified Solutions Architect
- Create and scale virtual machines
- Implement storage solutions
- Configure virtual networking
- Back up & share data using Data Services
- Connect to the cloud & on-premises sites
- AWS CDK
- AWS Identity and Access Management
- Monitor infrastructure
- Manage network traffic
- Secure identities
IT Operations (Cybersecurity) – Learning Objectives

Pre-Requisites

- College Algebra transcripts or Math placement test available online
- CompTIA A+ / Net+ (or similar cert) or 1-3 years of IT Experience

Outcomes

- Understand physical security principles, Internet & wireless security
- Analyze user authentication, permissions, password & audit policies, encryption & malware
- Create dedicated firewalls, network isolation & protocol security
- Design server, web & cloud protection

Certification Opportunities

- AWS Certified Solutions Architect - Associate
- CompTIA Security+
- CompTIA Linux+

Core

- CSC 160: Computing Technologies
  - Python/PHP
  - CompTIA Sec+ Exam Preparation
- CSC 345S: Data Communications and Networking (Advanced Networking)
  - Net Security

- Develop skills in Python/PHP/Bash scripting
- A computationally intensive approach to essential fundamental mathematics for computer science coding
- Learn scripting usage with Sage and Python
- Key topics: For-loops, tuples, dictionaries, lists, methods, sets, classes
- Concepts of data structures and algorithms
- Develops basic programming logic

- Apply the concepts of vulnerability, threat & risk to info. systems planning, operation and support
- Discuss roles government agencies (NIST, DHS, etc.), have in the overall process of cyber planning & implementation
- Demonstrate how NIST Cybersecurity Framework is used in planning/assessing info. Sys. security plans & programs
- Relate national security implications of cybersecurity & info. infrastructure protection to individual/private sector needs for info. security & assurance
- Identify key legal, ethical & regulatory elements that bare on cybersecurity planning & implementation

Advanced

- CSC 364: Cybersecurity Threat Intelligence
- CSC 395 ST: Ethical Hacking (Kali Linux)
  - CompTIA Linux+ Exam Preparation
- CSC 495 ST: Managing Identity & IAM
  - AWS Solutions Architect

- Relate organizational risk management to vulnerability assessment and risk mitigation
- Apply the concepts of threat modeling & threat surfaces to IT systems, public, private and hybrid cloud environments
- Conduct vulnerability assessments using CVE: Common Vulnerabilities and Exposure data, in conjunction with situation-specific threat modeling
- Develop and implement risk mitigation solutions to contain, eliminate or otherwise mitigate risks found in IT systems

- Learn Linux commands & how to interact with the terminal
- Understand how OS, Apps and websites work, how to discover & exploit their vulnerabilities
- Learn hacking tools such as Metasploit, Aircrack-ng, Nmap, Wireshark, etc.
- Intercept & analyze network traffic
- Learn how to harden OS/Apps and secure networks from attacks

- Explain the concepts of Identity Management, the Control Plane, Access Control to cloud/server architectures
- Compare and contrast various models for identity management and access control (LDAP/AD)
- AAA: Authentication, Authorization, Accounting
- Networking security, security groups, IaaS workload security
- Cloud security/cloud service models/backup & log analytics
- Cloud gateways, Web App security, Firewalls & dealing with DDoS threats
- Cloud Disk & Storage Encryption
- Identify key legal/ethical/regulatory elements that bear on identity management, AC, & accountability
The Career Development Managers (CDM) for the Washington Veterans to Tech (WaV2T) program are responsible for the job placement function for a cohort of WaV2T students. Our CDMs also maintain relationships with employers, and graduates of the WaV2T program, managing the social network of this specialized community.

**Professional Development**

- **Resumes**
  - Translating military experience
  - Personal assessment
  - Target Resumes

- **Cover Letters**
  - Personalization
  - Selling yourself

- **Virtual Presence**
  - LinkedIn
  - Personal branding
  - Social Media

- **Job Search**
  - Target job market
  - Hiring managers
  - Recruiters

- **Interview skills**
  - Research Company
  - Mock Interviews
  - Negotiations
  - Job offers
LabSim is TestOut’s learning platform. It delivers our certifications and courses, including our best-of-class IT simulations. It also provides tools for educators to manage and assess student learning. The LabSim courses keep students engaged and allow them to monitor their progress. LabSim is a flexible and cost-effective solution for IT education.

**OVERVIEW**

**SIMULATION LABS**
Our IT simulations provide the best way for students to practice real-world IT skills. Using integrated hardware and OS simulations, students face IT tasks that they will encounter on the job and are given immediate feedback to help them improve quickly.

**EXPERT INSTRUCTION**
Our team of instructors teach key information using multiple instructional methods to make sure students are engaged and fully understand materials. These methods include technology demonstrations, example illustrations, concept animations, and whiteboard discussions.

**INTERACTIVE VIDEO CONTROLS**
LabSim’s video player allows students to adjust playback speed, jump to a specific segment, or read the video script while a video is playing. This gives students the ability to customize their learning experience.

**TEXT LESSONS**
In LabSim, all key information is outlined and summarized in our text lessons. These lessons allow students to quickly learn or review practical knowledge they need to know in their professional careers.

**SECTION QUIZZES AND EXAMS**
Section quizzes and exams are designed to reinforce key concepts taught in our video and text lessons. These questions can also be used to make sure students have understood the required topics.

**CERTIFICATION PRACTICE EXAMS**
Our practice exams fully prepare students for industry certification exams. Not only are they prepared for fact-based exams, they’ll be ready for TestOut Pro certification exams, which are 100% skills-based.*

**PERFORMANCE REPORTS**
LabSim allows students to review their performance on their simulation labs and section exams. Students can use these reports to identify their strengths and weaknesses and improve their overall learning.