Server and Cloud Application – Learning Objectives

May 25, 2023

Pre-Requisites

- CSC 331: Windows Server Configuration and Management (IAM/Linux Admin LDAP/Active Directory)
- CSC 235: Introduction to Linux
- CSC 332: Configuring Advanced Windows Server Services (Linux/Win 2022)
- CSC 330: Networking and Server Fundamentals
- CSC 456: Configuring and Deploying Cloud Technologies

Outcomes

- CSC 160: Computing Technologies (Introduction to Computer Science)

Certification Opportunities*

- CSC 331: Windows Server Configuration and Management (IAM/Linux Admin LDAP/Active Directory)
- CSC 235: Introduction to Linux
- CSC 332: Configuring Advanced Windows Server Services (Linux/Win 2022)
- CSC 330: Networking and Server Fundamentals
- CSC 456: Configuring and Deploying Cloud Technologies

* Two certification exam vouchers are included in lab fees. WAV2T reserves the right to change which certifications are included under the voucher program.
Cloud Application Development (CAD) Learning Objectives

October 3, 2023

Pre-Requisites

CSC 160: Computing Technologies (Python/Introduction To Programming)
- Perform operations using data type and operators
- Control flow with decisions and loops
- Perform input and output operations
- Document and structure code
- Perform troubleshooting and error handling
- Current application development with Python on AWS specialization
- Learn to troubleshoot software problems; students provide peer feedback on code revisions

CSC 235: Introduction to Linux (Open-Source Dev)
- Open-source software development tools
- Working from CLI (command line interface)
- Filesystem layout, partitions
- Monitoring utilities
- Linux tools for developers
- Building packages out of software in Linux
- Using Git for distributed development
- Make changes in repositories; root and user
- Installing and securing NoSQL on Linux distributions
- Control changes made by other individuals
- Discover errors in your work and go back to earlier project states
- Manage making commits, diffs, merges, rebases

CSC 230: Introduction to Web Development (HTML5, CSS3 and JavaScript)
- Describe HTML5 features & create/style HTML5 pages
- Add interactivity to an HTML5 page using JavaScript
- Create HTML5 forms with input types/validate user input
- Send/receive data using XMLHTTP Request/Fetch API
- Build web-based application with NoSQL backend
- Create well-structured JavaScript code
- Identify and use current JavaScript version compatible with web browsers
- Use HTML5 APIs
- Create Web applications that support offline operations
- Style HTML5 pages using CSS3, vector graphics, and animation
- Use web sockets to send data to web apps & servers
- Use WebPack to package web apps for production

CSC 205: Cloud Application Development (Java/Object Oriented Programming)
- Introduction to Java syntax and variables
- Define classes and instantiate objects. Use of fields and methods.
- Use instance, static, and overloaded methods
- Understand variable scope, encapsulation, immutable objects, class inheritance (subclasses and super classes)
- Under four pillars of object-oriented programming, abstraction, encapsulation, inheritance and polymorphism
- Define and use enumerations. Understand reference vs value type.
- Understand object vs reference type
- Understand exception handling, create custom exceptions, work with arrays, and collections (including list, set, map and deque collections).
- Introduction to generics.
- Read and write file data using I/O streams, lambda expressions
- Composing code using Java Spring Framework

CSC 295: Introduction to Algorithms & Data Structures
- Analyze and compare code using the asymptotic analysis (Big-O)
- Implement sequential and interval search algorithms
- Implement sorting algorithms, such as: bubble sort, selection sort, insertion sort, merge sort, and quicksort
- Implement data structures such as: array lists, linked lists, stacks, queues, and binary search trees graphs
- Make use of generic programming
- Acquire skillsets on troubleshooting code revisions

CSC 457: Developing Cloud Solutions (in AWS)
- Develop & implement AWS compute solutions using VMs, batch jobs, and by using batch services
- Create containerized solutions using Docker and Kubernetes
- Implement AWS functions, storage solutions, relational and NoSQL DB solutions
- Implement AWS security using authentication, access control & secure data solutions
- Program a solution to support scalability of apps & services
- Implement AWS monitoring & logging solutions
- Develop app service logic apps, integrate AWS search within solutions, and add-in third-party services
- Understand event-based and message-based solutions

Outcomes

- Program using Object Oriented languages
- Apply Software Development Lifecycle (SDL)
- Develop web applications
- Design & build databases

Certification Opportunities*

* Three certification exam vouchers are included in lab fees. WAV2T reserves the right to change which certifications are included under the voucher program.

College Algebra transcripts or Math placement test available online

College Algebra transcripts or Math placement test available online
Cybersecurity Administration – Learning Objectives

May 25, 2023

Pre-Requisites

College Algebra transcripts or Math placement test available online

Outcomes

- Understand physical security principles, Internet & wireless security
- Analyze user authentication, permissions, password & audit policies, encryption & malware
- Create dedicated firewalls, network isolation & protocol security
- Configure & protect cloud data stores & local databases
- Conduct security & risk assessments & system audits
- Create an incident response report
- Create a risk assessment report on a real-world business

Certification Opportunities*

- CSC 160: Computing Technologies
  - Python/PHP
- CSC 325: Computer Security
  - Analyze security requirements
- CSC 330: Network and Server Fundamentals
  - CompTIA Network+ Exam Preparation
- CSC 364: Cybersecurity Threat Intelligence
  - CompTIA Sec+ Exam Preparation
- CSC 426: Vulnerability Assessment:
- CSC 455 Cloud Technologies
  - AWS Solutions Architect Exam Preparation

Core

- Develop skills in Python/PHP/Bash scripting
- Develop basic programming logic
- Learn basics of Linux CLI – using Kali Distribution
- Key topics: conditionals, strings/int/float; tuples, dictionaries, lists, methods, sets, classes, binary/hex
- Understand key data structures and algorithms
- Web programming basics
- Install Git & create a GitHub account

Advanced

- Explain concepts of Identity Management, the Control Plane, Access Control to cloud/server architectures
- AAA: Authentication, Authorization, Accounting
- 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 underpin identity management, AC, & accountability

- Monitor use of data files and regulate access to safeguard information in computer files
- Demonstrate how NIST Cybersecurity Framework is used in planning/assessing info. sys. security plans/programs
- AutoPvools – digital forensics
- Monitor current report of viruses/understand when to update virus protection systems
- Reverse engineering (Ghidra)
- Research top 10 vulnerabilities according to OWASP
- Shodan.io, OSINT

- 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
- Explain architectural security elements OSI
- Monitor current report of viruses/understand when to update virus protection systems
- 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

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Professional Development

- 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.

**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