C++ Programming (335)

Description
Evaluate knowledge of working with structured designs, algorithms, and OOP methodology using the C++ language. This contest can only be done in C++, if you want to use C#, you must take the Visual Basic/C# contest. **This contest will be graded on the Windows operating system; therefore Unix/Linux should NOT be used.**

Eligibility
Any student member may enter this event.

Contestant must supply
Computer or laptop/notebook; a full-size keyboard may be used (no printer is needed).
Carry-in and set-up of equipment must be done solely by the contestant.
Contestant must bring all supporting devices and software appropriate for the event (e.g., extension cords,
     power supply, IDE, paper, etc.).
Published and/or unpublished non-electronic written reference materials

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Business Professionals of America assumes no responsibility for hardware/software provided by the contestant. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Demonstrate understanding of general programming concepts and C++ computer language
- Use programming skills for proper development of a C++ computer program
- Demonstrate knowledge of C++ computer language
- Implement program logic (algorithms, structured design)
- Use structural design techniques and object-oriented concepts
- Create a C++ program using calculations, totals, selection, logical operators, classes, sequential file access, I/O operations, loops, methods, arrays, and data structures

Method of evaluation
Application

Length of event
No more than ten (10) minutes orientation
No more than ninety (90) minutes testing time
No more than ten (10) minutes wrap-up

Entries
Each state is allowed five (5) entries

This event is sponsored by:

UDRI
UNIVERSITY
of DAYTON
RESEARCH
INSTITUTE

Computer Network Technology (300)

Description
Demonstrate knowledge in fundamental networking concepts including network architecture, standards, topologies, protocols, and security. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all contestants passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be MTA Networking Fundamentals and will count as 25% of the final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Contestants must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit:
http://www.certiport.com/Portal/desktopdefault.aspx?tabid=665&roleid=101

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Published and/or unpublished non-electronic written reference materials

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Competencies
- Demonstrate knowledge of OSI model
- Demonstrate knowledge of IPv4
- Demonstrate knowledge of network adapters
- Demonstrate knowledge of network cabling
- Demonstrate knowledge of bridges and routers
- Demonstrate knowledge of network connectivity
- Demonstrate knowledge of network troubleshooting
- Demonstrate knowledge of network protocols
- Demonstrate knowledge of TCP/IP subnetting and routing
- Demonstrate knowledge of DNS
- Demonstrate knowledge of WINS
- Demonstrate knowledge of DHCP
- Demonstrate knowledge of IPv6
- Demonstrate knowledge of proxies and firewalls
- Demonstrate knowledge of troubleshooting tools
- Remote access protocols
- Demonstrate knowledge of network operating systems
- Demonstrate knowledge of network clients
- Demonstrate knowledge of directory services
- Demonstrate knowledge of administrative utilities

Method of evaluation
Objective Test
Certification test taken per conference schedule at NLC

Length of event
No more than sixty (60) minutes testing time

Entries
Each state is allowed five (5) entries

Computer Programming Concepts – Open Event (390)

Description
Demonstrate general knowledge of the computer programming industry.

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC
    Calculator Guidelines. **Contestants who violate this rule will be disqualified.**

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Demonstrate understanding of general programming concepts
- Demonstrate knowledge of computer languages
- Demonstrate knowledge of program logic (algorithms, structured design)
- Demonstrate knowledge of structural design techniques and object-oriented concepts
- Demonstrate knowledge of selection, logical operators, classes, sequential file access, I/O operations, data structures, and loops
- Demonstrate knowledge of the software development process
- Demonstrate knowledge of software design tools (UML, flowcharts, pseudo code)
- Demonstrate knowledge of structured query language
- Demonstrate knowledge of strings and arrays

Method of evaluation
Objective Test

Length of event
No more than sixty (60) minutes testing time

Entries
Unlimited

Reference materials may not be used for any Open Event

Computer Security (320)

Description
Demonstrate knowledge of fundamental security management tasks in Windows® and Linux® networking environments. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all contestants passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be MTA Security Fundamentals and will count as 25% of the final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Contestants must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit:
http://www.certiport.com/Portal/desktopdefault.aspx?tabid=665&roleid=101

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. **Contestants who violate this rule will be disqualified.**
Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks.

> **No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.**

Compentencies
- Demonstrate knowledge of security threats
- Understand infrastructure security
- Demonstrate knowledge of cryptography, access control and authentication
- Demonstrate security tactics to prevent against external attack
- Demonstrate knowledge of operational and organization security
- Identify security threats
- Demonstrate hardening internal Windows and Linux systems and services
- Demonstrate knowledge of TCP/IP
- Demonstrate hardening Internet work devices and services
- Demonstrate knowledge of network defense fundamentals
- Create security polices
- Perform a risk analysis
- Demonstrate knowledge of biometrics
- Demonstrate knowledge of cryptography
- Create router and access control lists
- Demonstrate knowledge of internet security issues
- Manage certificates
- Monitor security infrastructure

Method of evaluation
Objective
Certification test taken per conference schedule at NLC
Application: Top 10 contestants at national level only. Reference materials *are* allowed for the
    application portion.
At the national level, scores from the preliminary round and objective test do *not* advance with contestant
    to finals. Final contest score is based solely on hands-on component.

Length of event
Preliminaries - No more than 60 minutes for objective test
Finals - No more than 60 minutes for hands-on tasks

Entries
Each state is allowed five (5) entries

Information Technology Concepts – Open Event (391)

Description
Demonstrate general knowledge of the information technology industry.

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC
Calculator Guidelines. **Contestants who violate this rule will be disqualified.**

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Demonstrate knowledge of information technology concepts
- Demonstrate knowledge of programming language evolution
- Describe the history and evolution of computers
- Apply skills in programming language evolution
- Identify hardware and software basics
- Demonstrate understanding of graphics concepts
- Identify components and concepts related to printers
- Demonstrate understanding of operating systems
- Demonstrate understanding of security, law, and ethics
- Describe ergonomics and environmental concerns
- Demonstrate basic understanding of network concepts

Method of evaluation
Objective Test

Length of event
No more than sixty (60) minutes testing time

Entries
Unlimited

Reference materials may *not* be used for any Open Event

Java Programming (340)

Description
Evaluate knowledge of working with structured designs, algorithms, and OOP methodology using the Java Programming language.

Eligibility
Any student member may enter this event.

Contestant must supply
Computer or laptop/notebook; a full-size keyboard may be used (no printer is needed).
Carry-in and set-up of equipment must be done solely by the contestant.
Contestant must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.).
Published and/or unpublished non-electronic written reference materials

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Competencies
- Demonstrate knowledge of Java computer language
- Use Java computer language concepts and syntax
- Use structured design techniques and object-oriented concepts
- Apply programming concepts such as classes, operators, loops, control breaks, sequential file access, data structures, error handling, and I/O operations
- Understand and implement UML diagrams
- Demonstrate knowledge of error handling techniques

Method of evaluation
Application

Length of event
No more than ten (10) minutes orientation
No more than ninety (90) minutes testing time
No more than ten (10) minutes wrap-up

Entries
Each state is allowed five (5) entries

This event is sponsored by:

UDRI
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Network Administration Using Microsoft® (310)

Description
Demonstrate knowledge of fundamental network management and maintenance tasks in a Windows® network. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all contestants passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be MTA Networking Fundamentals and will count as 25% of the final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Contestants must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit:
http://www.certiport.com/Portal/desktopdefault.aspx?tabid=665&roleid=101

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. **Contestants who violate this rule will be disqualified.**
Published and/or unpublished non-electronic written reference materials

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No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Troubleshooting Win XP, Win 7, Win 8, Win 10, Win Server 2008, 2008 R2 operating systems installation
- Monitor, manage, and troubleshoot access to files and folders
- Manage and troubleshoot access to shared folders
- Manage printers and print jobs
- Configure and manage file systems
- Monitor and optimize system performance and reliability
- Recover system state data and user data
- Configure and troubleshoot the desktop environment
- Encrypt data on a hard disk by using Encrypting File Systems (EFS)
- Monitor, configure, troubleshoot, and control access to websites
- Configure and troubleshoot hardware devices and drivers
- Configure and troubleshoot Windows® Network connections
- Configure, monitor, and troubleshoot remote access
- Configure inbound connections
- Implement, configure, manage, and troubleshoot auditing, local security policy, and policies in a Windows® environment

Method of evaluation
Objective Test
Certification test taken per conference schedule at NLC

Length of event
No more than 60 minutes for objective test

Entries
Each state is allowed five (5) entries

Network Design Team (325)

Description

Analyze existing and planned business environments and develop a strategy for the implementation of a network infrastructure that addresses the business needs of the scenario provided. At state and national level, teams will be presented with an additional element to the scenario that requires revision of their final presentation.

Eligibility

Any student member may enter this event. A team will consist of 2-4 members. Teams must participate in both parts of the competition in order to be ranked.

Team must supply

Laptop/notebook computer **(each team member may have one laptop)**, portable printer, software, and
      paper for this event
Team must bring all supporting devices (e.g., extension cords, power supply, etc.)
Published and/or unpublished non-electronic written reference materials
Projector/Props (Optional)

Business Professionals of America assumes no responsibility for hardware/software provided by the contestant. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Apply technical skills in the network design
- Evaluate and delegate responsibilities needed to perform required tasks
- Utilize problem solving techniques
- Demonstrate teamwork skills needed to function in a business setting
- Analyze existing and planned network and systems management
- Demonstrate knowledge of network cable topologies
- Diagram the completed network
- Analyze end-user work needs
- Plan for placement and management of resources
- Plan for decentralized resources or centralized resources
- Incorporate redundancy into the network
- Design a remote access solution
- Analyze network infrastructure, protocols, and hosts
- Estimate upgrade cost based on existing environment
- Incorporate future expansion into the network
- Demonstrate an ability to meet software requirements
- Demonstrate a knowledge of VPNs
- Identify the company's tolerance for risk
- Analyze technical support structure
- Design a routing strategy
- Develop multiple recommendations to scenarios
- Produce business reports

Specifications

- This is a pre-submitted event. See instructions for submissions.
- The completed written proposal and a Team Entry Form must be uploaded to the National Center at http://www.bpa.org/submit in .pdf format no later than 11:59 p.m. Eastern Time on April 1, 2017. **The written proposal must follow the Report Format located in the *Style & Reference Manual*.**
- Contestants will receive an automated response confirmation at the time of submission. Individual confirmation of receipt cannot be provided by the National Center.
- No fax or mailed copies will be accepted.
- No exceptions can be made for missed deadlines due to incorrect submission or technical difficulties.
- Multiple submissions cannot be accepted.
- Contestants must be registered for national level competition prior to submission of materials.   The contestant number must be included as indicated.
- Use each member's full membership number (all 10 digits, i.e., 02-1234-0001) in the header.
- Materials from non-registered contestants and those missing contestant number and/or projects received after the deadline cannot be accepted.
- Not any changes can be made to the project after the date of submission.
- It is the policy of Business Professionals of America to comply with state and Federal copyright law. Federal law pertaining to copyright, as contained within the United States Code, is available at http://www.copyright.gov/title17/circ92.pdf. The *Style & Reference Manual* contains guidelines for Copyright and Fair Use. Participant(s) will be DISQUALIFIED for violations of the guidelines.
- One (1) copy of the completed written proposal and one (1) copy of the Team Entry Form must be submitted at the time of the presentation at the NLC at both Preliminary and Final Competition.
- Oral presentations will be limited to ten (10) minutes for presenting conclusions to the panel of judges and ten (10) minutes to answer judges' questions. Notes or note cards may be used.
- **Presentation will be stopped at ten (10) minutes.**

Topic

Elite Quick Freight, Inc. is a commercial shipping company that operates in the United States, specializing in transporting oversized items and hazardous materials. Currently, the company has a fleet of approximately 200 trucks of various capabilities, strategically placed throughout the nation at ten different locations. As a family-owned company, Elite Quick Freight, Inc. is known for its exceptional customer service, sound business ethics, and workplace quality. Elite Quick Freight, Inc. is now becoming a major player among large shipping companies, especially when specialized freight services, such as oversized or hazardous item transport, are required.

By following traditional business practices, and running the company in a consistent manner, Elite Quick Freight, Inc. has fallen victim to a lacking technology infrastructure. In order to "catch-up" with the latest in technology, Elite Quick Freight, Inc. is seeking proposals for a company network redesign. The company is looking to upgrade all desktop, laptop, and tablet devices, redesign and upgrade the network infrastructure, deploy a fleet management software/hardware system, and create a small data center at their main location that will host all needed applications and data. Due to budget constraints and the need for testing, the company is only looking to deploy the new network design to four of their locations, and the rest will follow in a secondary deployment. Below, you can find a detailed description of each location, and its current infrastructure, if any exists.

Headquarters (Birmingham, Alabama):

The main office of Elite Quick Freight, Inc. is in Birmingham, Alabama, in a large remodeled warehouse outside the city limits. The warehouse is sectioned off into a climate-controlled office space and a warehouse area where trucks load and unload freight. In the climate controlled area, there are ten office spaces, and one executive suite containing two office spaces. The company has decided to merge two of the office spaces into a larger room to house a small data center, as they are also interested in

relocating a small number of staff members to a secondary location. Elite Quick Freight, Inc. has asked for a complete design of their data center, including a description of recommended items such as: server racks, server types/brands/models, a core switch, power distribution, cooling, battery backup, secondary power backup, and anything else that might be needed. A server rack already exists in a small closet that contains the security camera server, intra-office communication server, file-share server, and a legacy email server. These existing systems will need to be migrated to the new data center, and the email server will need to be updated to match current industry standards. After the migration of existing systems, the company has requested the following functionalities. The software and/or servers, physical or virtual, need to provide such functionalities: a directory system that provides LDAP (lightweight directory access protocol), a centrally managed hypervisor for virtual machines and appliances, a web server for intra-organizational web applications, and a more robust file sharing/collaboration system. Due to a recent wave of "new hires," in this office location, Elite Quick Freight, Inc. recently went through a less intensive network redesign in this office, and are happy with the current network infrastructure. All that is required is integration with the new data center, and reorganization of the current subnets/VLANs (virtual local area networks) in order to properly segment the network for the following areas: secure communication between servers, office communication, office wireless communication, and visitor wireless communication. It is also required that the servers be protected by a firewall.

South Central Region (San Antonio, TX):
        In order to tap the large commercial market available in Texas, Elite Quick Freight, Inc. decided to place their first auxiliary shipping warehouse in San Antonio, TX. This location provides service to the whole state of Texas, as well as select locations in the states of New Mexico, Oklahoma, Arkansas, and Louisiana. Similar in structure to the Birmingham headquarters, this location has a climate controlled office area and a warehouse area used for shipping. However, at this location, there are only four offices. A recent boom in business in this office's region has prompted Elite Quick Freight, Inc. to hire an additional five office employees. Two of the existing offices will be combined into a larger room that will be setup with four cubicles. The other two offices will remain the same, and an additional area will be walled off in the warehouse, configured with climate control, and setup with three cubicles.
        The current network infrastructure at this location is considered minimal to non-existent. At most, the infrastructure can be considered a SOHO (small office, home office) network, with a single off-the-shelf wireless all-in-one router/switch/AP (access point). Elite Quick Freight, Inc. is requesting a list of equipment needed for this office to create an appropriate network to connect ten desktop workstations and thirty wireless devices, as well as a method to create a secure connection to the headquarters in Birmingham. Network segmentation for this office will need to match the following areas: office communication, office wireless communication, visitor wireless communication.

Midwestern Region (Cedar Rapids, Iowa):
        Providing service to the Midwestern U.S., the Cedar Rapids office is an important location for Elite Quick Freight, Inc. This location has, in similar fashion to the other locations, a climate controlled office space and a warehouse area. This office is smaller in comparison to the other office locations. A single medium sized area with four cubicles, a small walled-off area for the office manager, and a break room for all employees, make up the climate controlled area.
        The network infrastructure for this area will need to be kept simple, and does not require segmentation (subnets/VLANs). The infrastructure must be able to support at least eight desktop workstations and 20 wireless devices. A fast connection to the headquarters is required, and it must be secure, due to the probability of confidential data transmission.

Western Region (Fresno, California):
        The western region office provides service to the entire state of California, and select areas in bordering states. This office is quite large, and is actually separate from the region's shipping warehouse. While the warehouse is located outside of the city's urban center, the office is located in the middle of the

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city, in a two story office building. The first floor of the office building belongs to an accounting firm, and the second floor is occupied by Elite Quick Freight, Inc. Two large rooms separated into eight cubicles each, a lounge area, a receptionist area, three offices, and a one office executive suite makeup the office space. You may notice that this office is quite larger than the headquarters, and the company has considered in the past to make it the main location. The company has ultimately decided that having two key locations has been beneficial to business operations, especially when situated in two disparate geographic regions.

Due to the importance of the office, it has been recommended by the company to create a "hot" disaster recovery data center in this location that will act as a backup for the headquarters. A plan for executing this will need to be included in the final design for the network infrastructure. In addition, this location will require a complete network upgrade. The current infrastructure consists of an outdated wireless access point, a defunct file server, two 32 port 10/100 switches that need to be upgraded, a legacy router that exists at the network perimeter, and deteriorating CAT 5 cabling. Keep in mind that this office space is on the second floor when deciding on appropriate network cabling, and that this infrastructure description does not include the 15 desktop workstations and 20 wireless devices that require network access.

A file server at this location is not needed, and can be retired in the network redesign. To replace the file server, a fast connection will need to be created between this location and the Birmingham data center. The connection will be used extensively, and at times, more so than normal internet traffic. Take this requirement into account when recommending connection methods. To provide security and virtual organization within the office, network segmenting will be needed in this office. It is recommended that the network segmenting match the following: wired office communication and wireless office communication. A visitor's network will not be provided at this location.

Customer's needs:

Birmingham Office:
      -Provide a reasonable proposal for the new data center, taking the following needs into account:
            - server racks, physical organization, and cooling
            -server types/brands/models
            -core switch and networking needs
            -power distribution and backup
            -software application requirements specified in above document
      -Network segmentation (subnets/VLAN)
      -Security requirements

San Antonio Office:
      -Redesign of the network infrastructure from SOHO (small office/home office) to a business-class network
      -Equipment to provide connectivity to at least ten desktop workstations and thirty wireless devices
      -Fast and secure connection to headquarters

Cedar Rapids Office:
      -Intra-office connectivity
      -Fast and secure connection to headquarters

Fresno Office:
      -Complete upgrade of the listed network devices
      -Fast and secure wireless connectivity
      -Fast and secure connection to headquarters
      -"hot" disaster recovery site for the Birmingham office

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Equipment/supplies provided
Projection surface at national competition only

Method of evaluation
Judge's Scoring Rubric

Length of event
No more than thirty (30) minutes preparation time at State and National Level Only
No more than three (3) minutes set-up in presentation room
No more than ten (10) minutes presentation time
No more than ten (10) minutes judges' questions
Finals may be required at state and national levels

Entries
Each state is allowed two (2) entries

Teams in all judged events who wish to receive judges' comments must submit a self-addressed, stamped envelope to the event judges before judging takes place.

Network Design Team (325)

Judge Number _____   **Team Number** _____

Technical Scoring Rubric

Team followed topic	□ Yes	□ No (Disqualification)
If yes, please stop scoring and provide a brief reason for the disqualification below:		

Items to Evaluate	Below Average	Average	Good	Excellent	Points Awarded
Team submitted the correct information and in the correct format. • Team Entry Form - .pdf format (must be keyed but does not have to be signed for pre-submission) • Written proposal in Report Format - .pdf format ***All points or none are awarded by the technical judge.***				10	
TECHNICAL POINTS					
Written Proposal					
Customer profile	1-5	6-10	11-15	16-20	
Objectives	1-5	6-10	11-15	16-20	
Abstract of implementation	1-5	6-10	11-15	16-20	
Explanation of products and/or services provided	1-5	6-10	11-15	16-20	
Clarity of message • Message is attention-grabbing, compelling and concise • Message was developed according to topic	1-5	6-10	11-15	16-20	
Short- and long-range goals defined	1-5	6-10	11-15	16-20	
Financial Analysis	1-5	6-10	11-15	16-20	
Supporting Documentation	1-5	6-10	11-15	16-20	
Grammar, Spelling, Punctuation, and Usage • Content without errors/No copyright violations	5 (3+ errors)	10 (2 errors)	15 (1 error)	20 (0 errors)	
Total Written Proposal Points (180 points maximum)					
Creativity					
Solution is innovative • Fresh ideas, unique	1-5	6-10	11-15	16-20	
Total Creativity Points (20 points maximum)					
Specific Technical Recommendations					
Network design is in-line with industry standards	1-5	6-10	11-15	16-20	
Network design is reasonably priced	1-5	6-10	11-15	16-20	
Network architecture is fast, secure, and efficient	1-5	6-10	11-15	16-20	
Physical organization and setup of data center is explained	1-5	6-10	11-15	16-20	
Description of data center servers are explained in detail	1-5	6-10	11-15	16-20	
Network requirements are explained in detail	1-5	6-10	11-15	16-20	
Data center design is explained in detail	1-5	6-10	11-15	16-20	
Proposal is simple, but offices are clearly differentiated/explained	1-5	6-10	11-15	16-20	
Security of connections explained in detail	1-5	6-10	11-15	16-20	
Total Specific Technical Recommendation Points (180 points maximum)					
TOTAL TECHNICAL POINTS (390 points maximum)					

Network Design Team (325)

Judge Number _____   **Team Number** _____

Presentation Scoring Rubric

Items to Evaluate	Below Average	Average	Good	Excellent	Points Awarded
Ability to outline short- and long-term objectives and defend the solution as the most appropriate for the given scenario	1-5	6-10	11-15	16-20	
Ability to use technical terms, along with appropriate explanations that achieve effective communications with the client	1-5	6-10	11-15	16-20	
Voice quality and diction	1-5	6-10	11-15	16-20	
Self-confidence, assertiveness, and eye contact	1-5	6-10	11-15	16-20	
Presentation quality/style; flow	1-5	6-10	11-15	16-20	
All team members participated in presentation	1-5	6-10	11-15	16-20	
Response to judges' questions	1-5	6-10	11-15	16-20	
Total Presentation Points (140 points maximum)					

Specification Scoring Rubric

SPECIFICATION POINTS: All points or none per item are awarded by the proctor per team, not per judge.		Points Awarded
Set-up lasted no longer than three (3) minutes – 5 points Presentation lasted no longer than ten (10) minutes – 5 points	10	
All registered team members in attendance for entire event	10	
Documentation submitted at time of check-in: Keyed and signed Team Entry Form (1 copy), Written Proposal in Report Format (1 copy) *Must have copies for preliminaries and finals*	10	
TOTAL SPECIFICATION POINTS (30 points maximum)		

TOTAL MAXIMUM POINTS = 560

PRESENTATION WILL BE STOPPED AT 10 MINUTES

PC Servicing & Troubleshooting (305)

Description
Demonstrate knowledge of PC configuration, maintenance, and management as a computer technician. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all contestants passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be MTA Windows OS Fundamentals and will count as 25% of the final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Contestants must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: http://www.certiport.com/Portal/desktopdefault.aspx?tabid=665&roleid=101

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC
    Calculator Guidelines. **Contestants who violate this rule will be disqualified.**
Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks.

> **No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.**

Competencies
- Identify PC components
- Add and remove components
- Demonstrate knowledge of system resources
- Utilize peripheral ports
- Demonstrate knowledge of IDE, SATA & SCSI devices
- Utilize peripheral devices
- Troubleshoot problems
- Perform preventative maintenance and safety
- Demonstrate knowledge of RAM characteristics
- Demonstrate knowledge of system board characteristics
- Demonstrate knowledge of printer characteristics
- Demonstrate knowledge of basic networking concepts
- Demonstrate knowledge of OS functions and OS upgrades
- Demonstrate knowledge of disk/file management
- Demonstrate knowledge of Windows® installation
- Demonstrate booting procedures
- Configuring device drivers
- Demonstrate knowledge of error codes
- Demonstrate knowledge of Internet configuration
- Replace system components

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Equipment/supplies provided
Toolkit for hands-on component at national level

Method of evaluation
Objective Test
Certification test taken per conference schedule at NLC
Application: Top 10 contestants at national level only. Reference materials *are* allowed for the application portion.
At the national level, scores from the preliminary round and objective test do *not* advance with contestant to finals. Final contest score is based solely on hands-on component.

Length of event
Preliminaries - No more than 60 minutes for objective test
Finals - No more than 60 minutes for hands-on tasks

Entries
Each state is allowed five (5) entries

SQL Database Fundamentals (345)

Description
Demonstrate knowledge of fundamental database development and administrative concepts including SQL scripting. Competencies addressed in this event will mandate the contestant use a high end database product such as MS SQL Server®, the focus of this event, in order to acquire the necessary skills; however, skills sets addressed are transferable to any database product such as Oracle® or MySQL™.

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. **Contestants who violate this rule will be disqualified.**
Published and/or unpublished non-electronic written reference materials

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No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Identify various types of databases
- Create and employ tables, rows, columns
- Create and understand roll of keys
- Understand and create indexes
- Identify relationship types
- Define relational integrity
- Understand and employ the role of constraints
- Determine data relationships
- Identify normal forms and normalize to 3NF
- Understand and employ SQL syntax
- Understand the importance of data types and when to use them
- Understand SQL Server™ schemas and data dictionaries

- Understand/use DDL commands such as CREATE, DROP, ALTER database
- Add primary and foreign key constraints
- Understand/use DML commands such as INSERT, SELECT, UPDATE, DELETE
- Select data from multiple tables using the WHERE clause
- Use different JOIN types
- Use SQL UNION and INTERSECT
- Use aggregate and scalar functions
- Create and use views
- Use and understand transactions
- Understand database security concepts
- Understand how to back up databases
- Understand the use Stored Procedures

Method of evaluation
Objective Test

Length of event
No more than sixty (60) minutes testing time

Entries
Each state is allowed five (5) entries

Systems Administration Using CISCO® (315)

Description
Demonstrate knowledge of fundamental network management tasks in a CISCO® environment.

Eligibility
Any student member may enter this event.

Contestant must supply
Sharpened No. 2 pencils, pens, ruler
Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. **Contestants who violate this rule will be disqualified.**
Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks.

> **No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.**

Comptencies
- Demonstrate knowledge of OSI model
- Demonstrate knowledge of IPv4
- Demonstrate knowledge of router configuration
- Demonstrate knowledge of network management
- Demonstrate knowledge of LAN/WAN design
- Demonstrate knowledge of LAN/WAN security
- Demonstrate knowledge of network topologies
- Demonstrate knowledge of LAN/WAN routed and routing protocols
- Demonstrate knowledge of network components
- Demonstrate knowledge of IPv6
- Demonstrate knowledge of LAN/WAN switching theory and VLANS

Method of evaluation
Objective Test
Application: Top 10 contestants at national level only (PacketTracer Simulation software provided by CISCO® **be utilized**). Reference materials *are* allowed for the application portion.
At the national level, scores from the preliminary round and objective test do *not* advance with contestant to finals. Final contest score is based solely on hands-on component.

Length of event
Preliminaries - No more than 60 minutes for objective test
Finals - No more than 60 minutes for hands-on tasks

Entries
Each state is allowed five (5) entries

Visual Basic/C# Programming (330)

Description
Evaluate knowledge of working with Visual Basic/C# syntax, programming logic, program development, system design concepts, database, designers and objects. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all contestants passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be MTA Software Development Fundamentals - VB Exam *or* MTA Software Development Fundamentals - C# Exam and will count as 25% of the final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Contestants must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit:
http://www.certiport.com/Portal/desktopdefault.aspx?tabid=665&roleid=101

Eligibility
Any student member may enter this event.

Contestant must supply
Computer or laptop/notebook; a full-size keyboard may be used (no printer is needed)
Visual Studio 2008 or higher
Carry-in and set-up of equipment must be done solely by the contestant
Contestant must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.).
Published and/or unpublished non-electronic written reference materials

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Business Professionals of America assumes no responsibility for hardware/software provided by the contestant. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies
- Demonstrate knowledge of object oriented concepts and techniques
- Demonstrate understanding of general computer concepts and computer language
- Use structured design techniques, algorithms, and object-oriented concepts
- Create a program/GUI using variables, looping, controls, logical operations, calculations, classes, totals, sequence, data structures, selection, and I/O operations

Method of evaluation
Application
Certification test taken per conference schedule at NLC

Length of event
No more than ten (10) minutes orientation
No more than ninety (90) minutes testing time
No more than ten (10) minutes wrap-up

Entries
Each state is allowed five (5) entries