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CYBER SKYLINE

The National Cyber League
A Community Where Cybersecurity Is a Passion

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NCL Fall 2022 Individual Game Scouting Report

Dear Jacob Crowder,

Thank you for participating in the National Cyber League (NCL) 2022 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2022 Fall Season had 7,690 students/players and 475 faculty/coaches from more than 470 two- and four-year schools & 250 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 21 through October 23. The Team Game CTF event took place from November 4 through November 6. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.



To validate this report, please access: cyberskyline.com/report/Y7DXCLWEV65M

Congratulations for your participation in the NCL 2022 Fall Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

David Zeichick
NCL Commissioner



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CYBER SKYLINE

NATIONAL CYBER LEAGUE SCORE CARD

NCL 2022 FALL INDIVIDUAL GAME

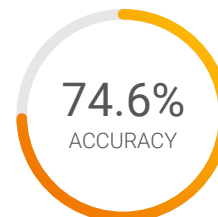
YOUR TOP CATEGORIES

NATIONAL RANK
1692ND PLACE
OUT OF 6675
PERCENTILE
75TH

**PASSWORD
CRACKING**
88TH PERCENTILE

**ENUMERATION &
EXPLOITATION**
87TH PERCENTILE

CRYPTOGRAPHY
80TH PERCENTILE



Average: 68.2%

[cyberskyline.com/report](https://cyberskyline.com/report/Y7DXCLWEV65M)
ID: Y7DXCLWEV65M



NCL Fall 2022 Individual Game

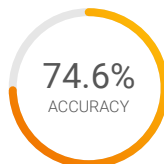
The NCL Individual Game is designed for student players nationwide to compete in realtime in the categories listed below. The Individual Game evaluates the technical cybersecurity skills of the individual, without the assistance of others.

1692 ND PLACE
OUT OF 6675
NATIONAL RANK

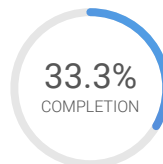
710 POINTS
OUT OF 3000
PERFORMANCE SCORE

75th National
Percentile

Average: 816.7 Points



Average: 68.2%



Average: 35.0%

Cryptography

170 POINTS
OUT OF 340

87.5%
ACCURACY

COMPLETION: **58.3%**

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

Enumeration & Exploitation

15 POINTS
OUT OF 325

100.0%
ACCURACY

COMPLETION: **7.1%**

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

Forensics

0 POINTS
OUT OF 300

0.0%
ACCURACY

COMPLETION: **0.0%**

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

Log Analysis

0 POINTS
OUT OF 320

0.0%
ACCURACY

COMPLETION: **0.0%**

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

Network Traffic Analysis

90 POINTS
OUT OF 360

100.0%
ACCURACY

COMPLETION: **35.0%**

Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

Open Source Intelligence

240 POINTS
OUT OF 300

60.7%
ACCURACY

COMPLETION: **85.0%**

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

Password Cracking

195 POINTS
OUT OF 330

100.0%
ACCURACY

COMPLETION: **66.7%**

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

Scanning & Reconnaissance

0 POINTS
OUT OF 300

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

Web Application Exploitation

0 POINTS
OUT OF 325

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

Note: Survey module (100 points) was excluded from this report.





Cryptography Module

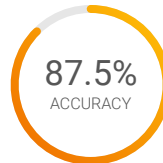
Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

1354 TH PLACE
OUT OF 6675
NATIONAL RANK

170 POINTS
OUT OF 340
PERFORMANCE SCORE

80th National
Percentile

Average: 177.8 Points



Average: 77.5%



Average: 63.3%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Decoding 1 (Easy)

30 POINTS
OUT OF 30

75.0%
ACCURACY

COMPLETION: **100.0%**

Identify the type of base encoding used and decode the data

Decoding 2 (Easy)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the cipher scheme used and decrypt the data

Decoding 3 (Easy)

40 POINTS
OUT OF 40

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the encoding scheme used and decode the data

Decoding 4 (Medium)

0 POINTS
OUT OF 40

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the encoding scheme used and decode the data

Decoding 5 (Hard)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the cipher scheme used and decrypt the data

Decoding 6 (Hard)

0 POINTS
OUT OF 80

0.0%
ACCURACY

COMPLETION: **0.0%**

Break the encryption on a trivial RSA encryption without the secret key

Steganography (Medium)

0 POINTS
OUT OF 50

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the steganography technique used and extract the hidden data





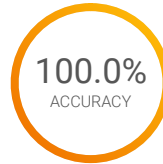
Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

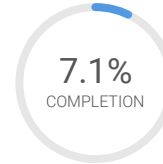
882 ND PLACE
OUT OF 6675
NATIONAL RANK

15 POINTS
OUT OF 325
PERFORMANCE SCORE

Average: 56.9 Points



Average: 41.5%



Average: 14.8%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

87th National
Percentile

Shell (Easy)

15 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **50.0%**

Analyze a shell script to identify its functionalities and vulnerabilities

Tracked (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the keylogger installed on a remote Linux system and its configuration

NetCode (Hard)

0 POINTS
OUT OF 125

0.0%
ACCURACY

COMPLETION: **0.0%**

Decompile a binary malware to identify its target environment and reverse engineer the Domain Generation Algorithm (DGA) to find the Command and Control (C2) server

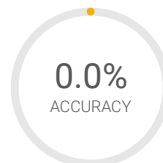
Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

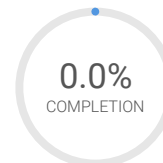
N/A
NATIONAL RANK

0 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 100.0 Points



Average: 42.2%



Average: 25.3%

TOP NICE WORKROLES

Cyber Defense Forensics
Analyst
Cyber Crime Investigator
Cyber Defense Incident
Responder
Cyber Defense Analyst

Stacked (Easy)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Extract additional files hidden in a photograph file using tools such as binwalk

Paper Trail (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Analyze a "counterfeit" bill to find the hidden Printer Machine Identification Code and identify the machine that printed the "counterfeit" bill

USB (Hard)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Recover and extract files from a filesystem image using tools such as Autopsy





Log Analysis Module

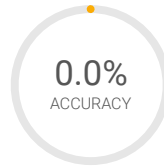
Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

2178 TH PLACE
OUT OF 6675
NATIONAL RANK

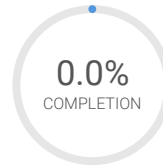
68th National
Percentile

0 POINTS
OUT OF
320
PERFORMANCE SCORE

Average: 107.6 Points



Average: 41.6%



Average: 41.7%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics
Analyst
Data Analyst

Compromise (Easy)

Analyze a Linux kernel log to identify threat actor activity and backdoors

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Access (Medium)

Analyze a SSH server log to identify compromise attempts from threat actors

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Minimal (Hard)

Analyze a binary log format and calculate anomalies in the log

0 POINTS
OUT OF
120

0.0%
ACCURACY

COMPLETION: 0.0%

Network Traffic Analysis Module

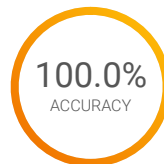
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

1609 TH PLACE
OUT OF 6675
NATIONAL RANK

76th National
Percentile

90 POINTS
OUT OF
360
PERFORMANCE SCORE

Average: 125.6 Points



Average: 62.3%



Average: 49.6%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident
Responder
Target Network Analyst
Cyber Operator

Retriever (Easy)

Extract sensitive information from emails in an IMAP packet capture

90 POINTS
OUT OF
90

100.0%
ACCURACY

COMPLETION: 100.0%

WiFi Cracking (Medium)

Identify vulnerable WiFi encryption scheme and crack the WiFi password

0 POINTS
OUT OF
70

0.0%
ACCURACY

COMPLETION: 0.0%

Trip to the Movies (Medium)

Extract the video stream transferred in an RTP packet capture

0 POINTS
OUT OF
90

0.0%
ACCURACY

COMPLETION: 0.0%

Secret (Hard)

Analyze and extract sensitive information from a covert DNS-based tunneling protocol in a comprehensive packet capture

0 POINTS
OUT OF
110

0.0%
ACCURACY

COMPLETION: 0.0%





Open Source Intelligence Module

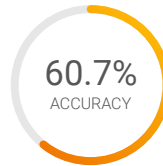
Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

1540 ^{TH PLACE}
OUT OF 6675
NATIONAL RANK

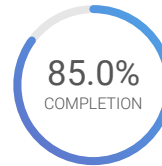
240 ^{POINTS}
OUT OF 300
PERFORMANCE SCORE

77th National
Percentile

Average: 204.2 Points



Average: 79.4%



Average: 77.7%

TOP NICE WORKROLES

Systems Security Analyst
Target Developer
System Administrator
Research & Development
Specialist
Cyber Intel Planner

Rules of Conduct (Easy)

15 ^{POINTS}
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Introductory challenge on acceptable conduct during NCL

Bank Routes (Easy)

40 ^{POINTS}
OUT OF 40

80.0%
ACCURACY

COMPLETION: **100.0%**

Identify bank routing numbers using openly available information

Alley (Medium)

35 ^{POINTS}
OUT OF 35

75.0%
ACCURACY

COMPLETION: **100.0%**

Extract GPS coordinates from JPEG metadata to find where the photo was taken

GeoData (Medium)

50 ^{POINTS}
OUT OF 50

50.0%
ACCURACY

COMPLETION: **100.0%**

Utilize Geographic Information System (GIS) to identify land plot and owner data

Colonial Crypto (Medium)

0 ^{POINTS}
OUT OF 60

0.0%
ACCURACY

COMPLETION: **0.0%**

Uncover the redacted Bitcoin wallets in the 2021 Colonial Ransomware Attack

Info (Hard)

100 ^{POINTS}
OUT OF 100

40.0%
ACCURACY

COMPLETION: **100.0%**

Analyze an unknown identifier scheme to find the media metadata



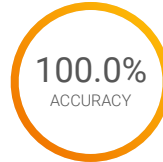


Password Cracking Module

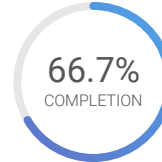
Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

832 ND PLACE
OUT OF 6675
NATIONAL RANK

195 POINTS
OUT OF 330
PERFORMANCE SCORE



Average: 87.6%



Average: 50.1%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident
Responder
Cyber Crime Investigator

88th National
Percentile

Average: 133.7 Points

Hashing (Easy)

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Build a wordlist or pattern config to crack password hashes of a known pattern

Cracking 4 (Hard)

0 POINTS
OUT OF 135

0.0%
ACCURACY

COMPLETION: **0.0%**

Build a wordlist to crack passwords not found in common wordlists





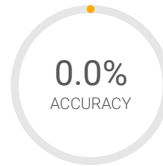
Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

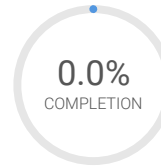
N/A
NATIONAL RANK

0 POINTS
OUT OF
300
PERFORMANCE SCORE

Average: 115.0 Points



Average: 70.6%



Average: 31.3%

TOP NICE WORKROLES

Vulnerability Assessment
Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Looking Glass (Easy)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Scan a HTTP server to enumerate its contents and possible vulnerabilities

Net Track (Medium)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Communicate with a text-based service using netcat/telnet

Tracker (Hard)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Scan and analyze the results from an HTTP BitTorrent Tracker service

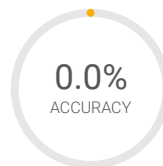
Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

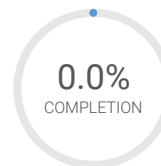
N/A
NATIONAL RANK

0 POINTS
OUT OF
325
PERFORMANCE SCORE

Average: 74.9 Points



Average: 82.6%



Average: 40.2%

TOP NICE WORKROLES

Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Tom's Fan Club (Easy)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Craft custom requests to a web server to uncover hidden pages

Setup (Medium)

0 POINTS
OUT OF
100

0.0%
ACCURACY

COMPLETION: 0.0%

Identify and exploit a directory traversal vulnerability in nginx to download sensitive files from the web server

Mystery (Hard)

0 POINTS
OUT OF
125

0.0%
ACCURACY

COMPLETION: 0.0%

Identify and exploit a SQL injection vulnerability to gain unauthorized access to a web server database

