NCL Fall 2023 Individual Game Scouting Report

Dear Ethan Brinks,

Thank you for participating in the National Cyber League (NCL) 2023 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 2023 Fall Season had 9,770 students/players and 588 faculty/coaches from more than 520 two- and four-year schools & 280 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 20 through October 22. The Team Game CTF event took place from November 3 through November 5. 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/64WG28VKE5TN

Based on the the performance detailed in this NCL Scouting Report, you have earned **1 hour** of Continuing Education Units (CEUs) as approved by CompTIA. You can learn more about the NCL - CompTIA alignment via nationalcyberleague.org/comptia.

Congratulations for your participation in the NCL 2023 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!
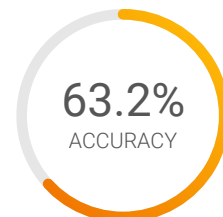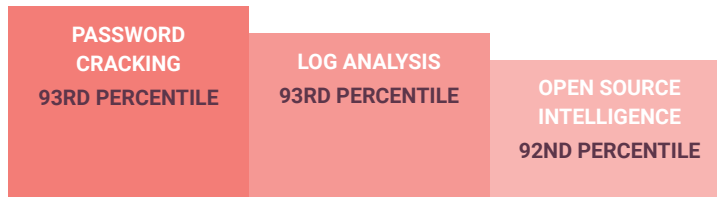
Dr. David Zeichick
NCL Commissioner

NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 FALL INDIVIDUAL GAME

NATIONAL RANK
823RD PLACE
OUT OF 7879

PERCENTILE
90TH

YOUR TOP CATEGORIES

PASSWORD CRACKING
93RD PERCENTILE

LOG ANALYSIS
93RD PERCENTILE

OPEN SOURCE INTELLIGENCE
92ND PERCENTILE

63.2%
ACCURACY

Average: 66.6%

cyberskyline.com/report
ID: 64WG28VKE5TN

NCL Fall 2023 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.

823 RD PLACE OUT OF **7879**
NATIONAL RANK

90th National Percentile

1105 POINTS OUT OF 3000
PERFORMANCE SCORE
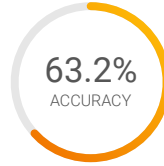
Average: 654.9 Points

63.2% ACCURACY

Average: 66.6%

52.9% COMPLETION

Average: 30.1%

Cryptography

85 POINTS OUT OF 335 | **87.5%** ACCURACY | COMPLETION: 58.3%

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

Enumeration & Exploitation

20 POINTS OUT OF 350 | **28.6%** ACCURACY | COMPLETION: 18.2%

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

70 POINTS OUT OF 300 | **23.5%** ACCURACY | COMPLETION: 25.0%

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

145 POINTS OUT OF 350 | **47.8%** ACCURACY | COMPLETION: 61.1%

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

Open Source Intelligence

280 POINTS OUT OF 295 | **100.0%** ACCURACY | COMPLETION: 95.8%

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

205 POINTS OUT OF 370 | **85.0%** ACCURACY | COMPLETION: 51.5%

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

Scanning & Reconnaissance

200 POINTS OUT OF 300 | **52.9%** ACCURACY | COMPLETION: 75.0%

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 300 | **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.
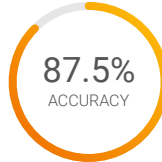
POWERED BY CYBER SKYLINE

Cryptography Module

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

2128 TH PLACE
OUT OF **7879**
NATIONAL RANK

73 rd National
Percentile

85 POINTS
OUT OF
335
PERFORMANCE SCORE

Average: 90.5 Points

87.5%
ACCURACY

Average: 78.4%

58.3%
COMPLETION

Average: 59.4%

TOP NICE WORKROLES
Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

Bases (Easy)
Obtain plaintext from messages encoded with common number bases

30 POINTS OUT OF 30 — **100.0%** ACCURACY — COMPLETION: **100.0%**

Shift (Easy)
Analyze and obtain the plaintext for a message encrypted with a shift cipher

30 POINTS OUT OF 30 — **100.0%** ACCURACY — COMPLETION: **100.0%**

Earl (Easy)
Obtain plaintext from messages encoded URL encoding

25 POINTS OUT OF 40 — **66.7%** ACCURACY — COMPLETION: **66.7%**

Rulebreaker (Medium)
Decipher a classic book cipher and find its source material

0 POINTS OUT OF 60 — **0.0%** ACCURACY — COMPLETION: **0.0%**

Encrypted Flag (Hard)
Recover the plaintext of an image that was encrypted with AES

0 POINTS OUT OF 75 — **0.0%** ACCURACY — COMPLETION: **0.0%**

Zoomers (Hard)
Perform cryptanalysis and break a custom homophonic cipher

0 POINTS OUT OF 100 — **0.0%** ACCURACY — COMPLETION: **0.0%**

The National Cyber League
A Community Where Cybersecurity Is a Passion
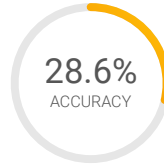
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Ethan Brinks
erbrinks@mtu.edu

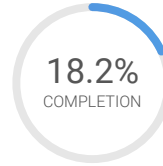# Enumeration & Exploitation Module

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

1777 TH PLACE OUT OF **7879**
NATIONAL RANK

78th National Percentile

20 POINTS OUT OF 350
PERFORMANCE SCORE

Average: 81.7 Points

28.6% ACCURACY

Average: 56.1%

18.2% COMPLETION

Average: 34.1%

TOP NICE WORKROLES
Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Everywhere (Easy)
10 POINTS OUT OF 80
20.0% ACCURACY
COMPLETION: **50.0%**

Analyze JavaScript source code to extract an insecurely stored authentication secret

UDP Hijack (Medium)
10 POINTS OUT OF 80
50.0% ACCURACY
COMPLETION: **33.3%**

Perform a session hijacking exploit by analyzing a custom network protocol

Throne (Medium)
0 POINTS OUT OF 90
0.0% ACCURACY
COMPLETION: **0.0%**

Analyze an obfuscated PowerShell malware using scheduled tasks

Hacktivate (Hard)
0 POINTS OUT OF 100
**0.0%** ACCURACY
COMPLETION: **0.0%**

Reverse engineer a compiled software program with anti-tamper features
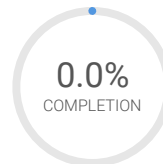
Forensics Module

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

1952 ND PLACE OUT OF **7879**
NATIONAL RANK

76th National Percentile

0 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 66.4 Points

0.0% ACCURACY

Average: 40.3%

0.0% COMPLETION
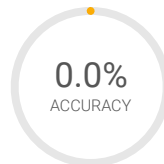
Average: 27.9%

TOP NICE WORKROLES
Cyber Defense Forensics Analyst
Cyber Crime Investigator
Cyber Defense Incident Responder
Cyber Defense Analyst

Run (Easy)
0 POINTS OUT OF 100
0.0% ACCURACY
COMPLETION: **0.0%**

Extract hidden files within an image using tools like binwalk

Download Manager (Medium)
0 POINTS OUT OF 100
0.0% ACCURACY
COMPLETION: **0.0%**

Perform binary data carving on a download manager's metadata file

Redacted (Hard)
0 POINTS OUT OF 100
0.0% ACCURACY
COMPLETION: **0.0%**

Programmatically un-blur text in an image to reveal redacted information

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.

612 TH PLACE OUT OF 7879
NATIONAL RANK

93 rd National Percentile

70 POINTS OUT OF 300
PERFORMANCE SCORE
Average: 53.7 Points

23.5% ACCURACY
Average: 36.9%
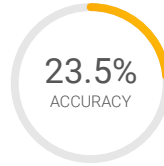
25.0% COMPLETION
Average: 19.3%

TOP NICE WORKROLES
Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics Analyst
Data Analyst

Attempt (Easy)
70 POINTS OUT OF 100   **33.3%** ACCURACY   COMPLETION: 80.0%

Analyze Windows event logs to build a timeline of a malware attack

Oddity (Medium)
0 POINTS OUT OF 100   **0.0%** ACCURACY   COMPLETION: 0.0%

Analyze a log file encoded with bencode to conduct statistical analysis of network requests

What the C (Hard)
0 POINTS OUT OF 100   **0.0%** ACCURACY   COMPLETION: 0.0%

Develop a custom method for parsing a non-standard binary log file and conduct statistical analysis
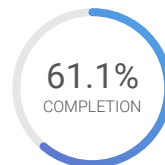
Network Traffic Analysis Module

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

704 TH PLACE OUT OF 7879
NATIONAL RANK

92 nd National Percentile

145 POINTS OUT OF 350
PERFORMANCE SCORE
Average: 100.5 Points

47.8% ACCURACY
Average: 54.3%
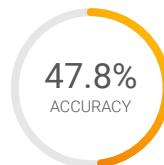
61.1% COMPLETION
Average: 37.5%

TOP NICE WORKROLES
Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident Responder
Target Network Analyst
Cyber Operator

Pong (Easy)
60 POINTS OUT OF 80   **45.5%** ACCURACY   COMPLETION: 83.3%

Extract ICMP information from a packet capture

HTTPS (Medium)
40 POINTS OUT OF 100   **33.3%** ACCURACY   COMPLETION: 40.0%

Decrypt and analyze an intercepted TLS packet capture

Cracking (Medium)
35 POINTS OUT OF 70   **75.0%** ACCURACY   COMPLETION: 75.0%

Analyze a WPA-encrypted network and perform a wordlist attack on the password

Extraction (Hard)
10 POINTS OUT OF 100   **50.0%** ACCURACY   COMPLETION: 33.3%

Recover data that was covertly exfiltrated in TCP sequence numbers

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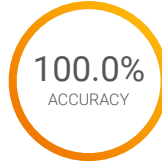
Ethan Brinks
erbrinks@mtu.edu

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.

635TH PLACE
OUT OF **7879**
NATIONAL RANK

92nd National
Percentile

280 POINTS
OUT OF
295
PERFORMANCE SCORE

Average: 166.1 Points

100.0%
ACCURACY

Average: 70.7%

95.8%
COMPLETION

Average: 61.9%

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

PGP Lookup (Easy)	**30** POINTS OUT OF 45	**100.0%** ACCURACY	COMPLETION:	66.7%

Query details of PGP public encryption keys shared online

Undersea (Easy)	**70** POINTS OUT OF 70	**100.0%** ACCURACY	COMPLETION:	100.0%

Conduct open-source target research on a public works project

Certificates (Medium)	**45** POINTS OUT OF 45	**100.0%** ACCURACY	COMPLETION:	100.0%

Query Certificate Transparency tools to audit historic TLS certificates

Electrified (Medium)	**70** POINTS OUT OF 70	**100.0%** ACCURACY	COMPLETION:	100.0%

Identify openly available information on EV charging infrastructure

Liber8tion v. Lawyers (Hard)	**50** POINTS OUT OF 50	**100.0%** ACCURACY	COMPLETION:	100.0%

Identify location of image through reverse image lookup and access publicly available government databases
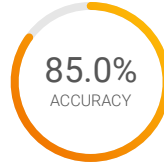
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Password Cracking Module

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

574 TH PLACE OUT OF **7879**
NATIONAL RANK

93rd National Percentile

205 POINTS OUT OF **370**
PERFORMANCE SCORE

Average: 109.9 Points

85.0%
ACCURACY

Average: 87.0%

51.5%
COMPLETION

Average: 31.1%

Hashing (Easy)
20 POINTS OUT OF **20**

Generate password hashes for MD5, SHA1, SHA256, and SHA512

100.0% ACCURACY

COMPLETION: 100.0%

Rockyou (Easy)
45 POINTS OUT OF **45**

Crack MD5 password hashes for password found in the rockyou breach

100.0% ACCURACY

COMPLETION: 100.0%

Windows (Easy)
30 POINTS OUT OF **45**

Crack Windows NTLM password hashes using rainbow tables

100.0% ACCURACY

COMPLETION: 66.7%

Flag Format (Medium)
60 POINTS OUT OF **60**

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

75.0% ACCURACY

COMPLETION: 100.0%

Cities (Medium)
50 POINTS OUT OF **100**

Build a wordlist to crack passwords not found in common wordlists

71.4% ACCURACY

COMPLETION: 50.0%

Red Carpet (Hard)
0 POINTS OUT OF **100**

Build a wordlist to crack passwords not found in common wordlists and augment with rules for special characters

0.0% ACCURACY

COMPLETION: 0.0%
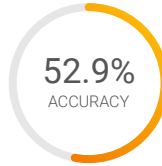
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Scanning & Reconnaissance Module

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

867 TH PLACE OUT OF **7879**
NATIONAL RANK

89th National Percentile

200 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 158.3 Points

52.9% ACCURACY

Average: 60.7%

75.0% COMPLETION

Average: 59.5%

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

Scan (Easy)
100 POINTS OUT OF 100 — 42.9% ACCURACY — COMPLETION: 100.0%

Scan a remote host for open ports and identify running services

Masscan (Medium)
100 POINTS OUT OF 100 — 66.7% ACCURACY — COMPLETION: 100.0%

Analyze the results of a large scale Internet scan from the masscan tool

Message (Hard)
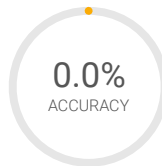0 POINTS OUT OF 100 — 0.0% ACCURACY — COMPLETION: 0.0%

Capture network traffic sent to a server using tools such as tcpdump
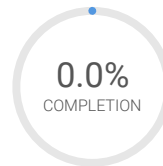
Web Application Exploitation Module

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

N/A
NATIONAL RANK

0 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 69.1 Points

0.0% ACCURACY

Average: 39.9%

0.0% COMPLETION

Average: 26.1%

TOP NICE WORKROLES
Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Witter (Easy)
0 POINTS OUT OF 100 — 0.0% ACCURACY — COMPLETION: 0.0%

De-obfuscate client side JavaScript code and exploit a social media service

Login (Medium)
0 POINTS OUT OF 100 — 0.0% ACCURACY — COMPLETION: 0.0%

Conduct SQL injection against an authentication service to sign in as admin

Cryptographic Lottery (Hard)
0 POINTS OUT OF 100 — 0.0% ACCURACY — COMPLETION: 0.0%

Exploit a Hash-Based Message Authentication Code using an MD5 length extension attack

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