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CYBER SKYLINE

The National Cyber League
A Community Where Cybersecurity Is a Passion

HILDA YAGUAX
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NCL Fall 2023 Individual Game Scouting Report

Dear HILDA YAGUAX,

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/U2YVC9B4WU67

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
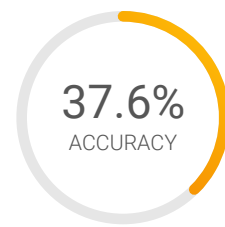NCL Commissioner

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NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 FALL INDIVIDUAL GAME

YOUR TOP CATEGORIES

FORENSICS
95TH PERCENTILE

WEB APPLICATION EXPLOITATION
93RD PERCENTILE

LOG ANALYSIS
92ND PERCENTILE

NATIONAL RANK
1103RD PLACE
OUT OF 7879

PERCENTILE
87TH

37.6%
ACCURACY

Average: 66.6%

cyberskyline.com/report
ID: U2YVC9B4WU67

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.

1103 RD PLACE OUT OF **7879**
NATIONAL RANK

87th National Percentile

935 POINTS OUT OF 3000
PERFORMANCE SCORE

Average: 654.9 Points

37.6% ACCURACY

Average: 66.6%

44.3% COMPLETION

Average: 30.1%

Cryptography

80 POINTS OUT OF 335

72.7% ACCURACY

COMPLETION: **66.7%**

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

Enumeration & Exploitation

30 POINTS OUT OF 350

15.0% ACCURACY

COMPLETION: **27.3%**

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

Forensics

120 POINTS OUT OF 300

40.0% ACCURACY

COMPLETION: **50.0%**

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

Log Analysis

65 POINTS OUT OF 300

21.1% 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

80 POINTS OUT OF 350

38.9% ACCURACY

COMPLETION: **38.9%**

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

Open Source Intelligence

255 POINTS OUT OF 295

55.3% ACCURACY

COMPLETION: **87.5%**

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

105 POINTS OUT OF 370

76.9% ACCURACY

COMPLETION: **30.3%**

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

Scanning & Reconnaissance

115 POINTS OUT OF 300

16.7% ACCURACY

COMPLETION: **33.3%**

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

Web Application Exploitation

85 POINTS OUT OF 300

8.3% ACCURACY

COMPLETION: **20.0%**

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.

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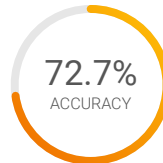**CYBER SKYLINE**

Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.
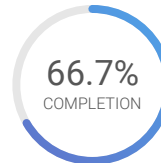
2511 TH PLACE OUT OF **7879**
NATIONAL RANK

69th National Percentile

80 POINTS OUT OF 335
PERFORMANCE SCORE

Average: 90.5 Points

72.7% ACCURACY

Average: 78.4%

66.7% COMPLETION

Average: 59.4%

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

|			
Bases (Easy)	30 POINTS OUT OF 30	75.0% ACCURACY	COMPLETION: 100.0%
Obtain plaintext from messages encoded with common number bases			
Shift (Easy)	30 POINTS OUT OF 30	100.0% ACCURACY	COMPLETION: 100.0%
Analyze and obtain the plaintext for a message encrypted with a shift cipher			
Earl (Easy)	40 POINTS OUT OF 40	100.0% ACCURACY	COMPLETION: 100.0%
Obtain plaintext from messages encoded URL encoding			
Rulebreaker (Medium)	-20 POINTS OUT OF 60	0.0% ACCURACY	COMPLETION: 0.0%
Decipher a classic book cipher and find its source material			
Encrypted Flag (Hard)	0 POINTS OUT OF 75	0.0% ACCURACY	COMPLETION: 0.0%
Recover the plaintext of an image that was encrypted with AES			
Zoomers (Hard)	0 POINTS OUT OF 100	0.0% ACCURACY	COMPLETION: 0.0%
Perform cryptanalysis and break a custom homophonic cipher			

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Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.
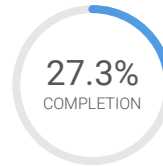
1574 TH PLACE OUT OF **7879**
NATIONAL RANK

81 st National Percentile

30 POINTS OUT OF 350
PERFORMANCE SCORE

Average: 81.7 Points

15.0% ACCURACY

Average: 56.1%

27.3% COMPLETION
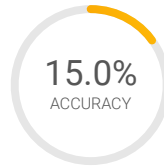
Average: 34.1%

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 — **25.0%** ACCURACY — COMPLETION: **33.3%**

Perform a session hijacking exploit by analyzing a custom network protocol

Throne (Medium)
10 POINTS OUT OF 90 — **9.1%** ACCURACY — COMPLETION: **25.0%**

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
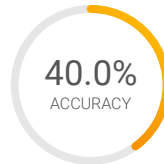
Forensics Module

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

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

95 th National Percentile

120 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 66.4 Points

40.0% ACCURACY

Average: 40.3%

50.0% COMPLETION

Average: 27.9%

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

Run (Easy)
100 POINTS OUT OF 100 — **100.0%** ACCURACY — COMPLETION: **100.0%**

Extract hidden files within an image using tools like binwalk

Download Manager (Medium)
20 POINTS OUT OF 100 — **25.0%** ACCURACY — COMPLETION: **40.0%**

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
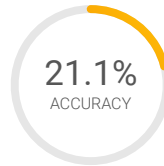
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Log Analysis Module

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

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

92 nd National Percentile

65 POINTS OUT OF **300**
PERFORMANCE SCORE

Average: 53.7 Points

21.1% 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)
65 POINTS OUT OF **100**
40.0% 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.
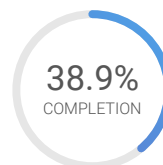
1245 TH PLACE OUT OF **7879**
NATIONAL RANK

85 th National Percentile

80 POINTS OUT OF **350**
PERFORMANCE SCORE

Average: 100.5 Points

38.9% ACCURACY
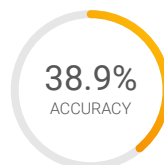
Average: 54.3%

38.9% 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**
62.5% ACCURACY
COMPLETION: **83.3%**

Extract ICMP information from a packet capture

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

Decrypt and analyze an intercepted TLS packet capture

Cracking (Medium)
10 POINTS OUT OF **70**
16.7% ACCURACY
COMPLETION: **25.0%**

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

Extraction (Hard)
10 POINTS OUT OF **100**
100.0% ACCURACY
COMPLETION: **33.3%**

Recover data that was covertly exfiltrated in TCP sequence numbers

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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.

1061 ST PLACE OUT OF **7879**
NATIONAL RANK

255 POINTS OUT OF 295
PERFORMANCE SCORE

87th National Percentile

Average: 166.1 Points

55.3% ACCURACY
Average: 70.7%
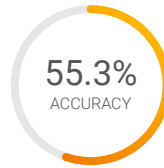
87.5% COMPLETION
Average: 61.9%

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)	**45** POINTS OUT OF 45	**60.0%** ACCURACY	COMPLETION: 100.0%
Query details of PGP public encryption keys shared online			
Undersea (Easy)	**70** POINTS OUT OF 70	**77.8%** ACCURACY	COMPLETION: 100.0%
Conduct open-source target research on a public works project			
Certificates (Medium)	**45** POINTS OUT OF 45	**75.0%** ACCURACY	COMPLETION: 100.0%
Query Certificate Transparency tools to audit historic TLS certificates			
Electrified (Medium)	**70** POINTS OUT OF 70	**36.4%** ACCURACY	COMPLETION: 100.0%
Identify openly available information on EV charging infrastructure			
Liber8tion v. Lawyers (Hard)	**10** POINTS OUT OF 50	**16.7%** ACCURACY	COMPLETION: 25.0%
Identify location of image through reverse image lookup and access publicly available government databases			

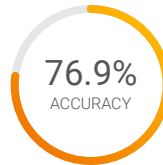**POWERED BY**
CYBER SKYLINE

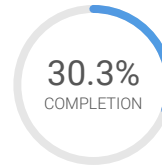## Password Cracking Module

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

1402 ND PLACE OUT OF **7879**
NATIONAL RANK

105 POINTS OUT OF 370
PERFORMANCE SCORE

76.9%
ACCURACY

30.3%
COMPLETION

83 rd National Percentile

Average: 109.9 Points

Average: 87.0%

Average: 31.1%

Hashing (Easy)	20 POINTS OUT OF 20	66.7% ACCURACY	COMPLETION:	100.0%

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

Rockyou (Easy)	45 POINTS OUT OF 45	100.0% ACCURACY	COMPLETION:	100.0%

Crack MD5 password hashes for password found in the rockyou breach

Windows (Easy)	45 POINTS OUT OF 45	100.0% ACCURACY	COMPLETION:	100.0%

Crack Windows NTLM password hashes using rainbow tables

Flag Format (Medium)	-5 POINTS OUT OF 60	0.0% ACCURACY	COMPLETION:	0.0%

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

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

Build a wordlist to crack passwords not found in common wordlists

Red Carpet (Hard)	0 POINTS OUT OF 100	0.0% ACCURACY	COMPLETION:	0.0%

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

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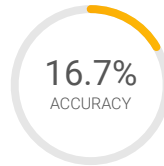hilda.yaguax@outlook.com

Scanning & Reconnaissance Module

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

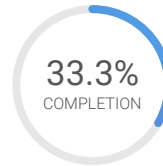**1360** TH PLACE OUT OF **7879**
NATIONAL RANK

83 rd National Percentile

115 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 158.3 Points

16.7% ACCURACY

Average: 60.7%

33.3% 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   **21.4%** ACCURACY   COMPLETION: **100.0%**

Scan a remote host for open ports and identify running services

Masscan (Medium)
15 POINTS OUT OF 100   **100.0%** ACCURACY   COMPLETION: **16.7%**

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
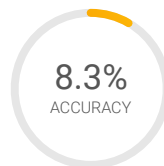
Web Application Exploitation Module

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

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

93 rd National Percentile

85 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 69.1 Points

8.3% ACCURACY

Average: 39.9%

20.0% COMPLETION

Average: 26.1%

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

Witter (Easy)
85 POINTS OUT OF 100   **100.0%** ACCURACY   COMPLETION: **100.0%**

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