NCL Spring 2023 Individual Game Scouting Report

Dear Yaen Torres Rosales,

Thank you for participating in the National Cyber League (NCL) 2023 Spring 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 Spring Season had 7,820 students/players and 533 faculty/coaches from more than 450 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 March 31 through April 2. The Team Game CTF event took place from April 14 through April 16. 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/7DTJRA0QAX8U

CompTIA. Based on the the performance detailed in this NCL Scouting Report, you have earned **8 hours** 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 Spring 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

POWERED BY CYBER SKYLINE

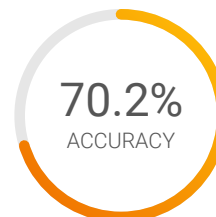# NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 SPRING INDIVIDUAL GAME

NATIONAL RANK

282ND PLACE OUT OF 6273

PERCENTILE
96TH

YOUR TOP CATEGORIES

CRYPTOGRAPHY
100TH PERCENTILE

NETWORK TRAFFIC ANALYSIS
99TH PERCENTILE

OPEN SOURCE INTELLIGENCE
96TH PERCENTILE

70.2%
ACCURACY

Average: 67.0%

cyberskyline.com/report
ID: 7DTJRA0QAX8U

Learn more at nationalcyberleague.org | Get in touch with us via info@nationalcyberleague.org

NCL Spring 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.

282 ND PLACE OUT OF **6273**
NATIONAL RANK

96 th National Percentile

1725 POINTS OUT OF 3000
PERFORMANCE SCORE

Average: 816.2 Points

70.2% ACCURACY

Average: 67.0%

73.3% COMPLETION

Average: 38.0%

Cryptography
285 POINTS OUT OF 360   **91.7%** ACCURACY   COMPLETION: **84.6%**

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

Enumeration & Exploitation
120 POINTS OUT OF 300   **77.8%** ACCURACY   COMPLETION: **77.8%**

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

Forensics
175 POINTS OUT OF 300   **60.0%** ACCURACY   COMPLETION: **66.7%**

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

Log Analysis
60 POINTS OUT OF 300   **22.7%** ACCURACY   COMPLETION: **45.5%**

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
320 POINTS OUT OF 370   **68.4%** ACCURACY   COMPLETION: **92.9%**

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

Open Source Intelligence
310 POINTS OUT OF 310   **95.0%** ACCURACY   COMPLETION: **100.0%**

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
235 POINTS OUT OF 360   **94.1%** ACCURACY   COMPLETION: **72.7%**

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

Scanning & Reconnaissance
100 POINTS OUT OF 300   **83.3%** ACCURACY   COMPLETION: **41.7%**

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

Web Application Exploitation
20 POINTS OUT OF 300   **40.0%** ACCURACY   COMPLETION: **33.3%**

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

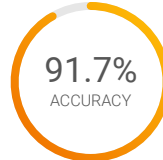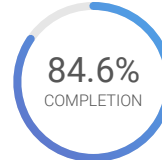Note: Survey module (100 points) was excluded from this report.

Cryptography Module

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

46 TH PLACE
OUT OF 6273
NATIONAL RANK

100th National Percentile

285 POINTS
OUT OF 360
PERFORMANCE SCORE

Average: 115.0 Points

91.7%
ACCURACY

Average: 77.2%

84.6%
COMPLETION

Average: 52.7%

TOP NICE WORKROLES

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

Decoding 1 (Easy)	**30** POINTS OUT OF 30	**100.0%** ACCURACY	COMPLETION: 100.0%
Obtain plaintext from messages encoded with common number bases			
Decoding 2 (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			
Decoding 3 (Medium)	**25** POINTS OUT OF 25	**100.0%** ACCURACY	COMPLETION: 100.0%
Obtain the plaintext of a message using charcode encoding			
Rolling (Medium)	**50** POINTS OUT OF 50	**75.0%** ACCURACY	COMPLETION: 100.0%
Analyze the cryptographic weakness of a ECB encrypted image			
PGP (Medium)	**75** POINTS OUT OF 75	**100.0%** ACCURACY	COMPLETION: 100.0%
Decrypt a PGP message and encrypt a PGP message using provided keys			
AES (Hard)	**0** POINTS OUT OF 75	**0.0%** ACCURACY	COMPLETION: 0.0%
Decrypt an AES encrypted message by exploiting an insecure key generation			
Steg (Hard)	**75** POINTS OUT OF 75	**100.0%** ACCURACY	COMPLETION: 100.0%
Recover the plaintext of a message that was hidden using LSB steganography			

Enumeration & Exploitation Module

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

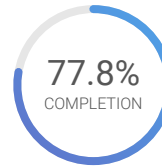**493** RD PLACE OUT OF **6273**
NATIONAL RANK

93 rd National Percentile

120 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 98.8 Points

77.8% ACCURACY
Average: 53.9%
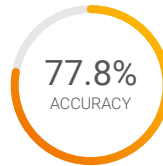
77.8% COMPLETION
Average: 58.8%

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

Dropper (Easy)
100 POINTS OUT OF 100

75.0% ACCURACY

COMPLETION: 100.0%

Analyze the behavior of a PowerShell malware that schedules system events for persistence

Ground floor (Medium)
20 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION: 50.0%

Analyze raw x64 assembly instructions to find a vulnerability in a validation check function

Memfrob (Hard)
0 POINTS OUT OF 100

0.0% ACCURACY

COMPLETION: 0.0%

Analyze and exploit a compiled C binary by leveraging a buffer overflow and ROP chains

Forensics Module

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

309 TH PLACE OUT OF **6273**
NATIONAL RANK

96 th National Percentile

175 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 128.7 Points

60.0% ACCURACY
Average: 57.4%
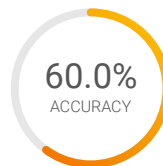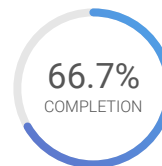
66.7% COMPLETION
Average: 43.4%

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

Lost (Easy)
100 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION: 100.0%

Recover files from the recycling bin of a Windows filesystem

Fruit (Medium)
75 POINTS OUT OF 100

50.0% ACCURACY

COMPLETION: 80.0%

Recover configuration data from a macOS plist file

Headless (Hard)
0 POINTS OUT OF 100

0.0% ACCURACY

COMPLETION: 0.0%

Identify the file type of the corrupted file and repair its magic bytes
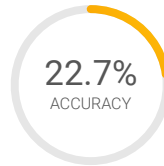
Log Analysis Module

Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.
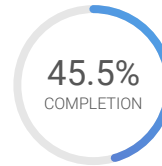
572 ND PLACE OUT OF 6273
NATIONAL RANK

91 st National Percentile

60 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 65.6 Points

22.7% ACCURACY

Average: 37.6%

45.5% COMPLETION

Average: 32.9%

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

Web (Easy)

50 POINTS OUT OF 100   **28.6%** ACCURACY   COMPLETION: **80.0%**

Analyze a web server log and identify traffic patterns

Email Compromise (Medium)

10 POINTS OUT OF 100   **12.5%** ACCURACY   COMPLETION: **25.0%**

Analyze Office 365 & DNS logs to identify a phishing email compromise

Fraud (Hard)

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

Analyze a payment log to identify what account had fraudulent purchases

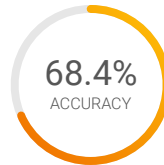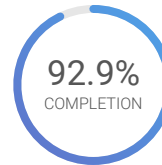# Network Traffic Analysis Module

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

120 TH PLACE OUT OF **6273**
NATIONAL RANK

99th National Percentile

320 POINTS OUT OF 370
PERFORMANCE SCORE

Average: 133.0 Points

68.4% ACCURACY

Average: 52.4%

92.9% COMPLETION

Average: 46.9%

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

Information (Easy)

100 POINTS OUT OF 100

66.7% ACCURACY

COMPLETION: 100.0%

Analyze a network packet capture of WHOIS queries to obtain information on a domain

Hidden (Medium)

20 POINTS OUT OF 70

66.7% ACCURACY

COMPLETION: 66.7%

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

Scan (Medium)

100 POINTS OUT OF 100

57.1% ACCURACY

COMPLETION: 100.0%

Analyze a network packet capture to identify open ports on the target server and the type of nmap scan

Ponder (Hard)

100 POINTS OUT OF 100

100.0% ACCURACY

COMPLETION: 100.0%

Analyze a network packet capture to extract data stolen through DNS based data exfiltration

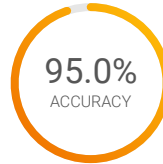# Open Source Intelligence Module

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

263 RD PLACE OUT OF **6273**
NATIONAL RANK

96th National Percentile

310 POINTS OUT OF 310
PERFORMANCE SCORE

Average: 215.7 Points

95.0% ACCURACY

Average: 80.0%

100.0% COMPLETION

Average: 75.8%

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				
Waypoints (Easy)	**50** POINTS OUT OF 50	**83.3%** ACCURACY	COMPLETION:	100.0%
Identify openly available information on navigation waypoints				
Document (Medium)	**50** POINTS OUT OF 50	**100.0%** ACCURACY	COMPLETION:	100.0%
Extract the fields from the machine-readable zone of a passport				
Esoteric (Medium)	**50** POINTS OUT OF 50	**100.0%** ACCURACY	COMPLETION:	100.0%
Identify the esoteric alphabet used to hide a secret message				
Greek (Medium)	**70** POINTS OUT OF 70	**100.0%** ACCURACY	COMPLETION:	100.0%
Identify the location of a photograph using reverse image search				
Numbers (Hard)	**75** POINTS OUT OF 75	**100.0%** ACCURACY	COMPLETION:	100.0%
Identify the scheme of a set of numbers without a well known format				

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The National Cyber League
A Community Where Cybersecurity Is a Passion
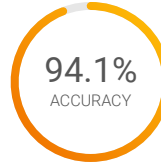
Yaen Torres Rosales
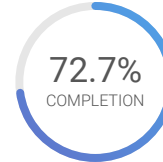
Password Cracking Module

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

273 RD PLACE
OUT OF 6273
NATIONAL RANK

96th National Percentile

235 POINTS
OUT OF 360
PERFORMANCE SCORE

Average: 133.2 Points

94.1%
ACCURACY

Average: 87.3%

72.7%
COMPLETION

Average: 45.5%

TOP NICE WORKROLES
Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident Responder
Cyber Crime Investigator

Hashing (Easy)

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

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

45 POINTS OUT OF 45 | **100.0%** ACCURACY | COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

45 POINTS OUT OF 45 | **75.0%** ACCURACY | COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

45 POINTS OUT OF 45 | **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 45 | **0.0%** ACCURACY | COMPLETION: **0.0%**

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

Cracking 5 (Hard)

20 POINTS OUT OF 100 | **100.0%** ACCURACY | COMPLETION: **40.0%**

Build a wordlist to crack passwords not found in common wordlists

PDF (Medium)

50 POINTS OUT OF 50 | **100.0%** ACCURACY | COMPLETION: **100.0%**

Crack the password for a protected PDF file
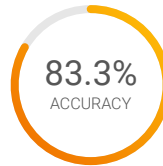

Scanning & Reconnaissance Module

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

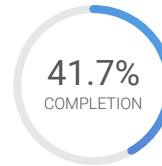**901** ST PLACE OUT OF **6273**
NATIONAL RANK

86th National Percentile

100 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 111.6 Points

83.3% ACCURACY

Average: 70.1%

41.7% COMPLETION

Average: 43.7%

TOP NICE WORKROLES

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

Ports (Easy)

100 POINTS OUT OF 100 | **100.0%** ACCURACY | COMPLETION: 100.0%

Scan a remote host for open ports and identify running services

Who (Medium)

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

Enumerate the possible domains on a WHOIS server to extract information

Metadata (Hard)

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

Scan an AWS EC2 Metadata Service to extract information about the instance
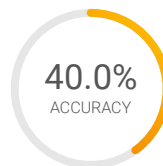
Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.
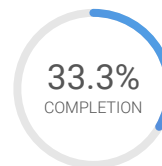
607 TH PLACE OUT OF **6273**
NATIONAL RANK

91st National Percentile

20 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 33.0 Points

40.0% ACCURACY

Average: 39.7%

33.3% COMPLETION

Average: 20.0%

TOP NICE WORKROLES

Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Shopping (Easy)

-10 POINTS OUT OF 100 | **50.0%** ACCURACY | COMPLETION: 50.0%

Exploit an implicit type conversion vulnerability in an express application

Attack Portal (Medium)

30 POINTS OUT OF 100 | **33.3%** ACCURACY | COMPLETION: 50.0%

Manipulate a web form to inject extra JSON fields to override a server-side check

File Server (Hard)

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

Exploit a race condition to download a restricted file during server operations