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NCL Fall 2022 Individual Game Scouting Report

Dear Sophie Gleadell,

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/H8QVKHGNKP37

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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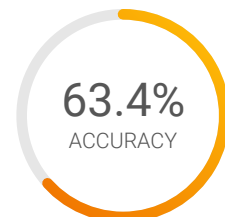# NATIONAL CYBER LEAGUE SCORE CARD

NCL 2022 FALL INDIVIDUAL GAME

YOUR TOP CATEGORIES

NATIONAL RANK
1415TH PLACE
OUT OF 6675

PERCENTILE
79TH

OPEN SOURCE INTELLIGENCE 87TH PERCENTILE	FORENSICS 86TH PERCENTILE	ENUMERATION & EXPLOITATION 80TH PERCENTILE

63.4%
ACCURACY

Average: 68.2%

cyberskyline.com/report
ID: H8QVKHGNKP37

The National Cyber League
A Community Where Cybersecurity Is a Passion

Sophie Gleadell
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# 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.

1415 TH PLACE OUT OF **6675**
NATIONAL RANK

79th National Percentile

840 POINTS OUT OF 3000
PERFORMANCE SCORE
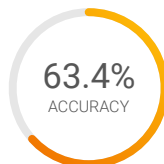
Average: 816.7 Points

63.4% ACCURACY

Average: 68.2%
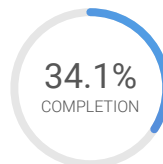
34.1% COMPLETION

Average: 35.0%

Cryptography

120 POINTS OUT OF 340

62.5% ACCURACY

COMPLETION: 41.7%

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

Enumeration & Exploitation

15 POINTS OUT OF 325

20.0% ACCURACY

COMPLETION: 7.1%

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

Forensics

100 POINTS OUT OF 300

20.0% ACCURACY

COMPLETION: 16.7%

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

Log Analysis

40 POINTS OUT OF 320

44.4% ACCURACY

COMPLETION: 19.0%

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

70.0% ACCURACY

COMPLETION: 35.0%

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

Open Source Intelligence

300 POINTS OUT OF 300

76.9% 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

75 POINTS OUT OF 330

85.7% ACCURACY

COMPLETION: 33.3%

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.

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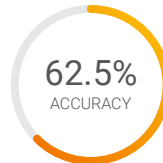Sophie Gleadell
sophiemg.1222@gmail.com

Cryptography Module

Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.
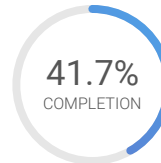
2264 TH PLACE OUT OF **6675**
NATIONAL RANK

67th National Percentile

120 POINTS OUT OF 340
PERFORMANCE SCORE

Average: 177.8 Points

62.5% ACCURACY

Average: 77.5%

41.7% COMPLETION

Average: 63.3%

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

Decoding 1 (Easy)
Identify the type of base encoding used and decode the data

30 POINTS OUT OF 30 | **60.0%** ACCURACY | COMPLETION: 100.0%

Decoding 2 (Easy)
Identify the cipher scheme used and decrypt the data

0 POINTS OUT OF 50 | **0.0%** ACCURACY | COMPLETION: 0.0%

Decoding 3 (Easy)
Identify the encoding scheme used and decode the data

40 POINTS OUT OF 40 | **50.0%** ACCURACY | COMPLETION: 100.0%

Decoding 4 (Medium)
Identify the encoding scheme used and decode the data

0 POINTS OUT OF 40 | **0.0%** ACCURACY | COMPLETION: 0.0%

Decoding 5 (Hard)
Identify the cipher scheme used and decrypt the data

0 POINTS OUT OF 50 | **0.0%** ACCURACY | COMPLETION: 0.0%

Decoding 6 (Hard)
Break the encryption on a trivial RSA encryption without the secret key

0 POINTS OUT OF 80 | **0.0%** ACCURACY | COMPLETION: 0.0%

Steganography (Medium)
Identify the steganography technique used and extract the hidden data

50 POINTS OUT OF 50 | **100.0%** ACCURACY | COMPLETION: 100.0%
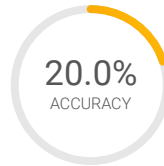
POWERED BY
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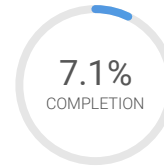
Enumeration & Exploitation Module

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

1377 TH PLACE
OUT OF **6675**
NATIONAL RANK

80th National Percentile

15 POINTS
OUT OF 325
PERFORMANCE SCORE

Average: 56.9 Points

20.0%
ACCURACY

Average: 41.5%

7.1%
COMPLETION

Average: 14.8%

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

Shell (Easy)
15 POINTS OUT OF 100 · **33.3%** 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)
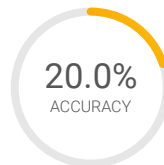**0** POINTS OUT OF 125 · **0.0%** ACCURACY · COMPLETION: **0.0%**

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
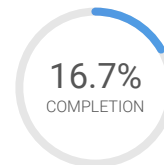
Forensics Module

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

989 TH PLACE
OUT OF **6675**
NATIONAL RANK

86th National Percentile

100 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 100.0 Points

20.0%
ACCURACY

Average: 42.2%

16.7%
COMPLETION

Average: 25.3%

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

Stacked (Easy)
100 POINTS OUT OF 100 · **100.0%** ACCURACY · COMPLETION: **100.0%**

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

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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.

1574 TH PLACE OUT OF **6675**
NATIONAL RANK

77th National Percentile

40 POINTS OUT OF **320**
PERFORMANCE SCORE

Average: 107.6 Points

44.4% ACCURACY

Average: 41.6%

19.0% COMPLETION
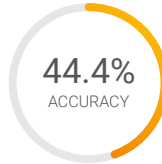
Average: 41.7%

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

Compromise (Easy)	**40** POINTS OUT OF 100	**44.4%** ACCURACY	COMPLETION:	44.4%
Analyze a Linux kernel log to identify threat actor activity and backdoors				
Access (Medium)	**0** POINTS OUT OF 100	**0.0%** ACCURACY	COMPLETION:	0.0%
Analyze a SSH server log to identify compromise attempts from threat actors				
Minimal (Hard)	**0** POINTS OUT OF 120	**0.0%** ACCURACY	COMPLETION:	0.0%
Analyze a binary log format and calculate anomalies in the log				

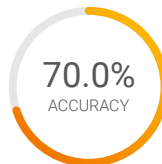## Network Traffic Analysis Module

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

1815 TH PLACE OUT OF **6675**
NATIONAL RANK

73rd National Percentile

90 POINTS OUT OF **360**
PERFORMANCE SCORE

Average: 125.6 Points

70.0% ACCURACY

Average: 62.3%

35.0% COMPLETION

Average: 49.6%

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

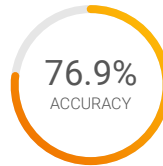|				
Retriever (Easy)	**90** POINTS OUT OF 90	**77.8%** ACCURACY	COMPLETION:	100.0%
Extract sensitive information from emails in an IMAP packet capture				
WiFi Cracking (Medium)	**0** POINTS OUT OF 70	**0.0%** ACCURACY	COMPLETION:	0.0%
Identify vulnerable WiFi encryption scheme and crack the WiFi password				
Trip to the Movies (Medium)	**0** POINTS OUT OF 90	**0.0%** ACCURACY	COMPLETION:	0.0%
Extract the video stream transferred in an RTP packet capture				
Secret (Hard)	**0** POINTS OUT OF 110	**0.0%** ACCURACY	COMPLETION:	0.0%
Analyze and extract sensitive information from a covert DNS-based tunneling protocol in a comprehensive packet capture				

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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.

903 RD PLACE OUT OF **6675**
NATIONAL RANK

87th National Percentile

300 POINTS OUT OF 300
PERFORMANCE SCORE

Average: 204.2 Points

76.9% ACCURACY

Average: 79.4%

100.0% COMPLETION

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	**100.0%** ACCURACY	COMPLETION: 100.0%
Identify bank routing numbers using openly available information			
Alley (Medium)	**35** POINTS OUT OF 35	**50.0%** ACCURACY	COMPLETION: 100.0%
Extract GPS coordinates from JPEG metadata to find where the photo was taken			
GeoData (Medium)	**50** POINTS OUT OF 50	**100.0%** ACCURACY	COMPLETION: 100.0%
Utilize Geographic Information System (GIS) to identify land plot and owner data			
Colonial Crypto (Medium)	**60** POINTS OUT OF 60	**100.0%** ACCURACY	COMPLETION: 100.0%
Uncover the redacted Bitcoin wallets in the 2021 Colonial Ransomware Attack			
Info (Hard)	**100** POINTS OUT OF 100	**57.1%** ACCURACY	COMPLETION: 100.0%
Analyze an unknown identifier scheme to find the media metadata			

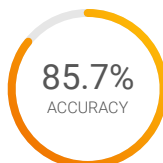**POWERED BY**
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Password Cracking Module

Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.
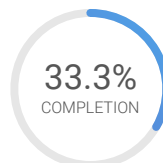
2108 TH PLACE OUT OF **6675**
NATIONAL RANK

69th National Percentile

75 POINTS OUT OF 330
PERFORMANCE SCORE

Average: 133.7 Points

85.7%
ACCURACY

Average: 87.6%

33.3%
COMPLETION

Average: 50.1%

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

Hashing (Easy)

Generate password hashes for MD5, SHA1, and SHA256

15 POINTS OUT OF 15 | **100.0%** ACCURACY | COMPLETION: 100.0%

Cracking 1 (Easy)

Crack MD5 password hashes

60 POINTS OUT OF 60 | **100.0%** ACCURACY | COMPLETION: 100.0%

Cracking 2 (Easy)

Crack Windows NTLM password hashes using rainbow tables

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

Cracking 3 (Medium)

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

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

Cracking 4 (Hard)

Build a wordlist to crack passwords not found in common wordlists

0 POINTS OUT OF 135 | **0.0%** ACCURACY | COMPLETION: 0.0%
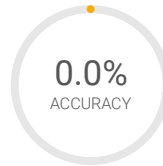
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Scanning & Reconnaissance Module

Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.
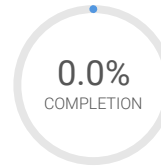
N/A
NATIONAL RANK

0 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 115.0 Points

0.0%
ACCURACY

Average: 70.6%

0.0%
COMPLETION

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
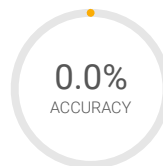
Web Application Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.
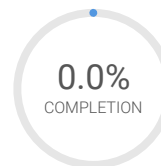
N/A
NATIONAL RANK

0 POINTS
OUT OF 325
PERFORMANCE SCORE

Average: 74.9 Points

0.0%
ACCURACY

Average: 82.6%

0.0%
COMPLETION

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