

Write your name below and indicate your role,

Project Manager (PM), Recorder (R)

Name _____ Role _____

Name _____ Role _____

The Need for Addressing

Your Tasks

- ☐ Review Broadcast Battleship Rules
- ☐ Play Broadcast Battleship Round 1- Unplugged
- ☐ Get Acquainted with the Internet Simulator
- ☐ Have Ms. Pluska check off your round of Battleship
- ☐ Play Broadcast Battleship Round 2 - Internet Simulator (ASCII)
- ☐ Invent a Binary Protocol for Battleship
- ☐ Play Broadcast Battleship Round 3 - Internet Simulator (Binary)
- ☐ Have Ms. Pluska check off your round of Battleship
- ☐ Critique your Binary Protocol
- ☐ Reflect
- ☐ Receive credit for the group portion of this lab

☐ Review Broadcast Battleship Rules

- Navigate to the following link and review Broadcast Battleship Rules
<https://hpluska.github.io/APCompSciPrinciples/labs/Internet/NeedForAddressing/BattleshipRules.pdf>

☐ Play Broadcast Battleship Round 1 - Unplugged

- Group up with 2 or 3 classmates
- Obtain a Broadcast Battleship Game Board
- Develop a protocol for playing unplugged Battleship with your group
- Play 1 round

☐ Get Acquainted with the Internet Simulator

- Navigate to the following link and watch the video on the Internet Simulator
<https://www.youtube.com/watch?v=clk2R0QuXkI>
- Navigate to lesson 9 Stage 2 and join the simulator - EVERYONE MUST JOIN THEIR ASSIGNED ROOM
- Once you are in the room with your team, click on the "My Devices" Tab make sure ASCII is selected "Binary" is NOT selected
- With your group, discuss a protocol for playing Battleship using only the Internet Simulator

❑ Play Broadcast Battleship Round 2 - Internet Simulator (ASCII)

- Play another round of Battleship using only the Internet Simulator
 - Make sure you have ASCII selected under the “My Devices Tab”
 - NO TALKING

❑ Have Ms. Pluska check off your round of battleship



Before you continue have Ms. Pluska check off your round of battleship

Do not continue until you have Ms. Pluska’s (or her designated TA’s) signature _____

❑ Invent a Binary Protocol for Battleship

In the previous rounds of Battleship, you came up with a method for exchanging messages on an open broadcast channel to play multiple games of Battleship at once. Now that you’ve played Battleship this way, with your group or with a partner, **describe an efficient binary protocol for playing a 3 or 4-person game of Battleship that can be played accurately over the Internet Simulator.**

Let “efficient” mean that your protocol uses the smallest reasonable number of bits (0s and 1s) to make messages for Battleship that still contain all of the necessary information for playing the game.

Example Grids for Player A

Player A's ship on the board

	A	B	C
1			
2		X	
3	X		

Player A's guesses

	A	B	C
1			X
2	X		
3	X		

List all of the information (data) that you will need to communicate in order to play Battleship. For example you need to know who is firing, along with the x-coordinate and y-coordinates, whether or not they hit or missed, etc.

Explain your protocol. How will you use 0s and 1s to communicate the information above. Don't worry about coming up with a "correct" protocol -- just one that works! Make sure you explain your protocol well enough that another group could follow it. Also, provide some example encodings that could be used to exchange information during game play.

- Test out your protocol with another round of battleship.

❑ **Play Broadcast Battleship Round 3 - Internet Simulator (Binary)**

- Play another round of Battleship using only the Internet Simulator
 - Make sure you have Binary selected AND ASCII deselected under the "My Devices Tab"
 - NO TALKING

❑ **Have Ms. Pluska check off your round of battleship**



Before you continue have Ms. Pluska check off your round of battleship

Do not continue until you have Ms. Pluska's (or her designated TA's) signature _____

❑ Critique your binary protocol

Critique the success of your binary protocol using the criteria below,

Criteria	Yes	No	Comments
All members knew who was firing and who was getting fired at.			
The person firing communicated the coordinates on the game board			
Hit and missed shots were communicated			
Whether or not a ship had sunk was communicated			
All members knew when game play ended			

❑ Reflect

For a 3 - person game of Battleship how many bits do you need to address each player? Explain.

What if you wanted to expand your game to include 8 people, 16 people, 128 people? How many bits would you need to address each player?

What does the activity have to do with the actual Internet?

❑ Receive Credit for the group portion of this lab



Indicate the names of all group members.

Have Ms. Pluska check your Need for Addressing lab

Submit your lab to the needs to be graded folder to receive credit for the group portion of this lab.

Do not submit your lab until you have Ms. Pluska's (or her designated TA's) signature _____