



Group 4:

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# Virtual Battleship

- Based on the traditional board game
- Graphical User Interface
- Single player game against computer
- Two player game through networking
  - Notify user if opponent disconnects
- Help menu available throughout the game
  - Rules
  - How to Play



# Objective

Create a way for a person to play the game of Battleship by themselves or for two people who are unable to play in person to play a game of Battleship together via the Internet



# Prominent Features

- Computer strategy
  - Two difficulty levels
- Manual ship placement
  - Only allow for legal endpoints
  - Highlight appropriate tiles to give user feedback and visibility
- Random ship placement option



# Random Ship Placement

```
for(int i = 0; i < ships.size();){
    Ship ship = ships.get(i);
    //keep going until we have a legal starting point and at least one legal ending point
    List<Point> legalEndpoints;
    boolean placed = false;
    while(!placed){
        Point start = new Point();
        do {
            start.x = random.nextInt(COLUMNS);
            start.y = random.nextInt(ROWS);
        } while (!checkPlaceLegal(start));

        ship.setStart(start);

        legalEndpoints = findLegalEndpoints(ship);
        if(legalEndpoints.size() != 0) {
            Point endPoint = legalEndpoints.get(random.nextInt(legalEndpoints.size()));
            ship.setEnd(endPoint);

            placed = true;

            for (int j = 0; j < i && placed; j++) {
                Ship ship2 = ships.get(j);
                if (intersect(ship, ship2)) {
                    placed = false;
                }
            }
        }
    }
}
```



Live Demo!

