



Network Battleship Game

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Overview



- Game overview
- Functionality
- Algorithm Flow
- Code Snippets
- Live DEMO
- Future additions
- Questions

- [illegible]

Figure 1: Game splash screen and main menu

Functionality

- Game Modes:
 - 2 Player network mode
 - 1 Player vs. computer
- Replay option at the end
- Intuitive GUI
- Move by move reporting
- Reports statistics of game

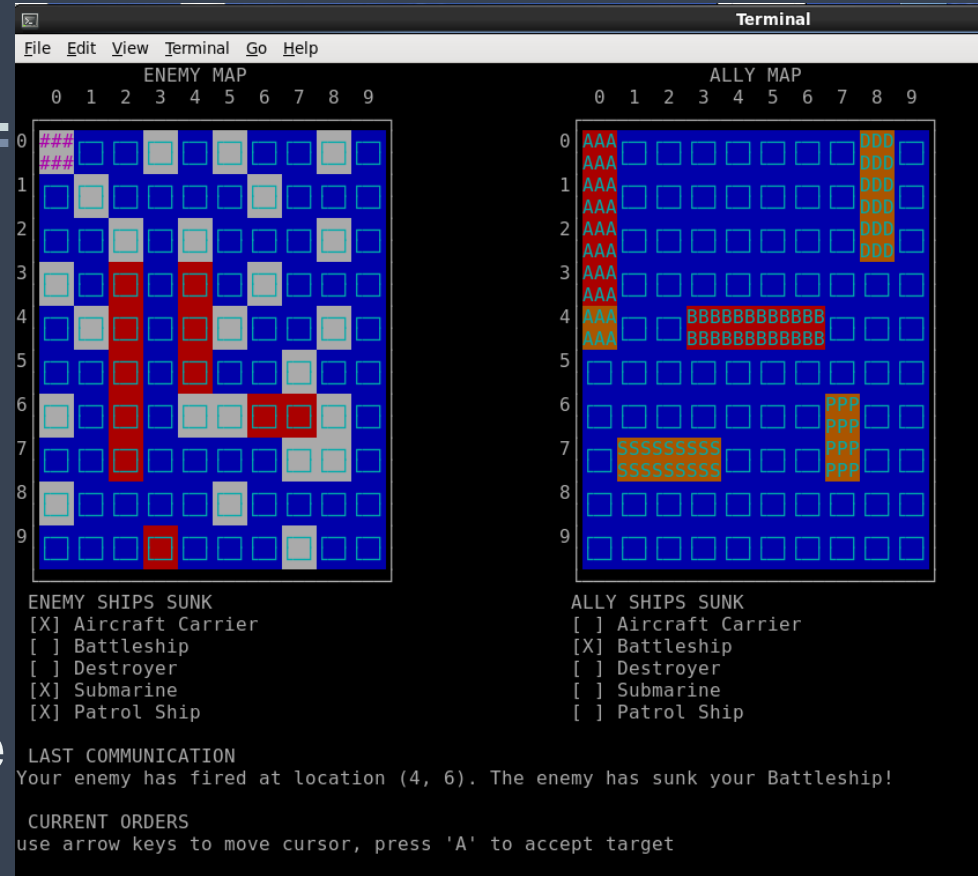
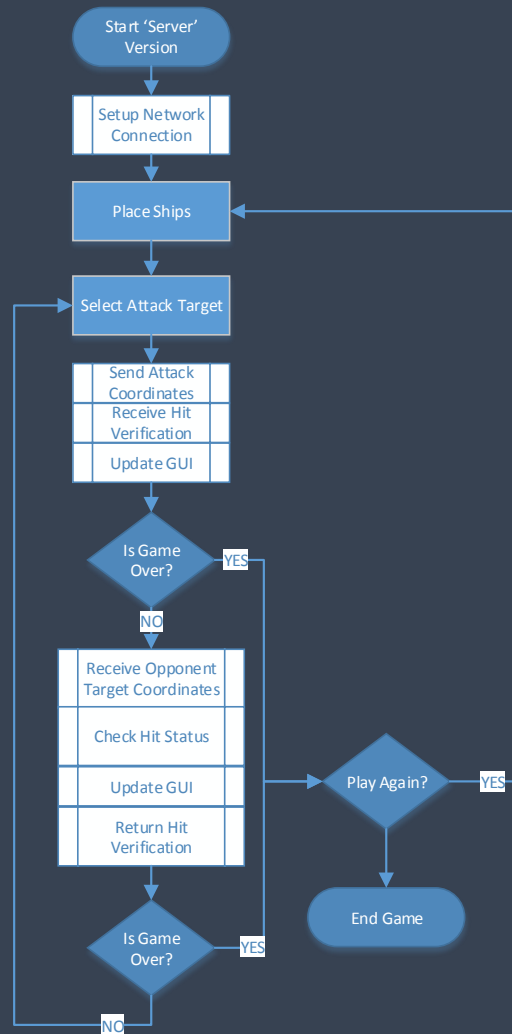


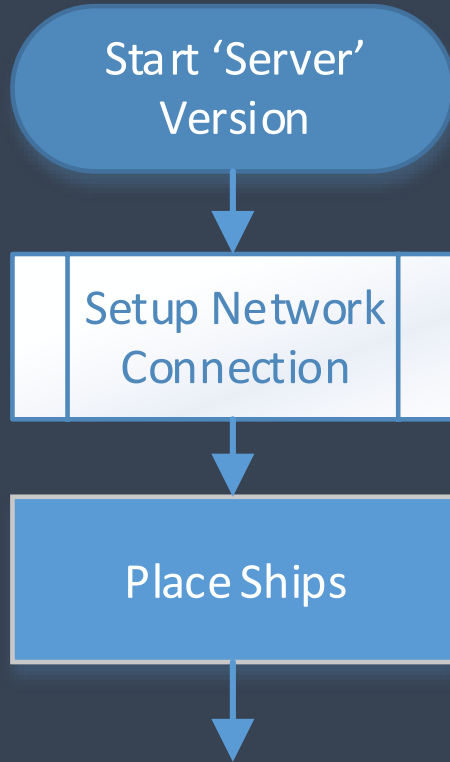
Figure 2: In game graphical user interface (GUI)

Example: Server Algorithm Flow



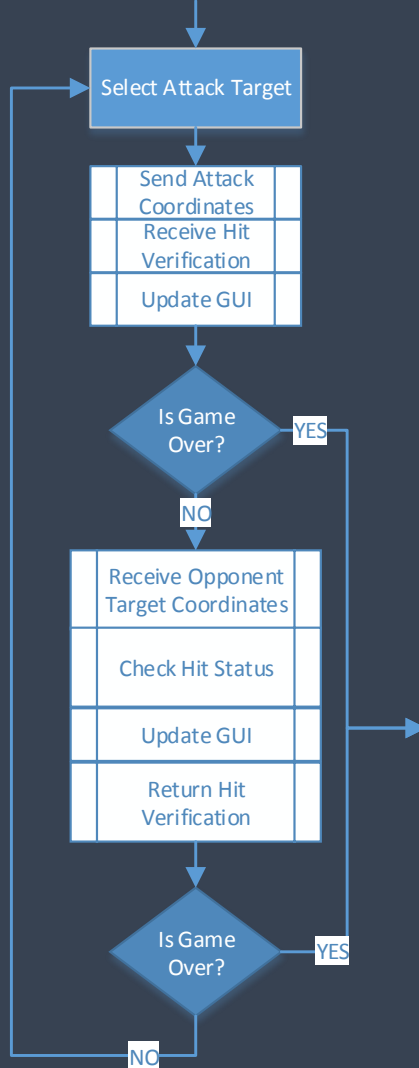
- Game flow begins with game-type selection (not shown)
- Setup Network
- User Setup Ships
- Normal Gameplay Loop
- Replay Game

Example: Server Algorithm Flow



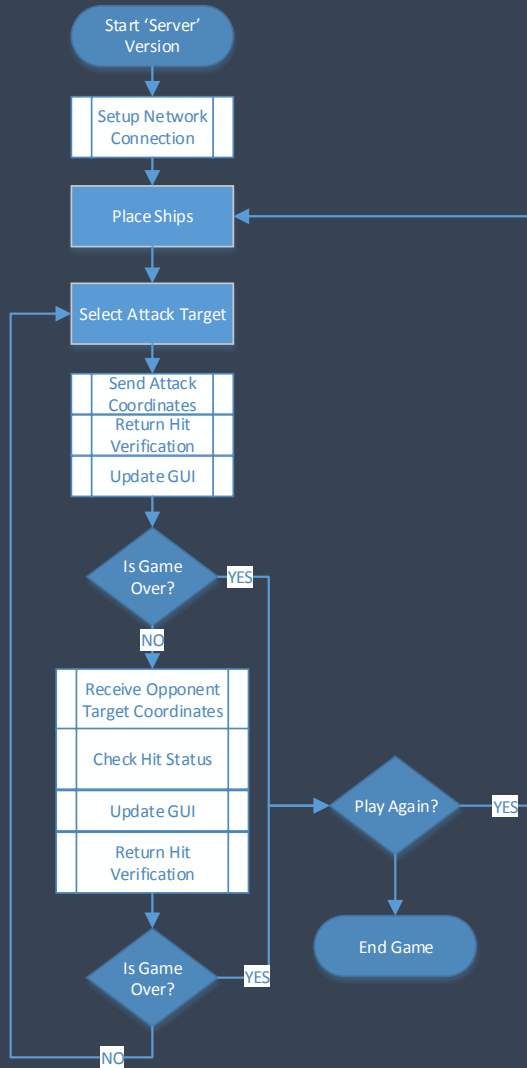
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Example: Server Algorithm Flow



- Game flow begins with game-type selection (not shown)
- Setup Network
- User Places Ships
- Normal Gameplay Loop
- Replay Game

Example: Server Algorithm Flow



- Game flow begins with game-type selection (not shown)
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Code Snippets: Receiving an Attack

```
void ControlClass::defendAlly(
    MarkerClass** const &defenderGrid,
    CursesGUI &defenderGUI,
    ShipClass* defenderShipArray[NUM_SHIPS],
    ServerClass &serverObj)
{
    //define socket data that will be passed to listen to target X,Y loc.
    char incomingFireY, incomingFireX;
    char sunkShipID = NO_SHIP_ID;
    //listen to the coordinates the enemy is firing at
    serverObj.getResponse(incomingFireY, incomingFireX);

    int targetY = convertCharToInt(incomingFireY);
    int targetX = convertCharToInt(incomingFireX);
    //check if the enemy scored a hit. Update sunkShipID if he sunk
    //a ship. Return the outcome of the attack as true if successful.
    bool isHit = checkAllyHit(targetY, targetX,
                             defenderGrid,
                             defenderShipArray,
                             defenderGUI,
                             sunkShipID);

    //holds the outcome of the enemy attack to be sent as response
    char hitStatus;

    if (!isHit) //when the enemy misses his shot
    {
        hitStatus = '0';
    }
    else //when the enemy fire scores a hit
    {
        hitStatus = '1';
    }

    //report back whether the enemy attack was successful or not,
    //along with the ID of the ship that was sunk if it sunk any ship
    serverObj.sendResponse(hitStatus, sunkShipID);
}
```

Code Snippets: Writing GUI Map

```
void WMap::wSetMark( int y, int x, marker type)
{
    y=y*MMH+1;
    x=x*MMW+1;
    int color;
    if ( type.fg == '#' )
    {
        if ( type.bg == EMPTY_MARKER ) {color=MAGENTA_BLUE; }
        else if ( type.bg == MISS_MARKER ) {color=MAGENTA_WHITE;}
        else if ( type.bg == HIT_MARKER ) {color=MAGENTA_RED;}
        else if ( type.bg == SHIP_MARKER ) {color=MAGENTA_YELLOW;}
    }
    else if ( type.bg == EMPTY_MARKER ) {color=CYAN_BLUE;}
    else if ( type.bg == MISS_MARKER ) {color=CYAN_WHITE;}
    else if ( type.bg == HIT_MARKER ) {color=CYAN_RED;}
    else if ( type.bg == SHIP_MARKER ) {color=CYAN_YELLOW;}

    //turn on color attribute
    watttron(map,COLOR_PAIR(color));
```

```
    if ( type.fg != ' ' ) //if the foreground isn't blank (water)
    {
        //should be ' ' foreground
        mvwaddch(map,y,x,type.fg);
        mvwaddch(map,y,x+1,type.fg);
        mvwaddch(map,y,x+2,type.fg);
        mvwaddch(map,y+1,x,type.fg);
        mvwaddch(map,y+1,x+1,type.fg);
        mvwaddch(map,y+1,x+2,type.fg);
    }
    else
    {
        //set colors of 2x2 area
        mvwaddch(map,y,x,ACS_ULCORNER);
        mvwaddch(map,y,x+1,ACS_HLINE);
        mvwaddch(map,y,x+2,ACS_URCORNER);
        mvwaddch(map,y+1,x,ACS_LLCORNER);
        mvwaddch(map,y+1,x+1,ACS_HLINE);
        mvwaddch(map,y+1,x+2,ACS_LRCORNER);
    }
    wattroff(map,COLOR_PAIR(color));
}
```

LIVE DEMO

Future additions



- Chat between players
- Different difficulty AI
- Additional games during game
- Sounds to game

Questions?