



# Treasure Hunt with a Twist

Welcome to a unique adventure, where the traditional treasure hunt gets a captivating twist. Join us as we delve into a puzzles, challenges, boosts, traps and unexpected discoveries.

**by TEAM CODE CREW**

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# Introduction

## • What is the Treasure Hunt Game?

**A simple grid-based game where a player navigates a 5×5, 7×7, 10×10 grid to find a hidden treasure while avoiding traps.**

## Objective

- Develop a grid-based game for players to:
  - Collect treasures.
  - Avoid traps.
  - Strategically manage moves and health.
- Introduce a "hint system" to improve accessibility.

# Key Features :

## Dynamic Difficulty Levels:

- Easy: 5x5 grid, few traps.
- Medium: 7x7 grid, more traps.
- Hard: 10x10 grid, maximum traps.

## Randomized Gameplay:

- Treasures (T), traps (X), and boosts (+) are placed randomly.

### 1. Player Actions: Winning & Losing Conditions:

- Move using w (up), a (left), s (down), d (right).
- Request hints with h.

### 2. Winning & Losing Conditions: Lose by: Health reaching 0. Running out of moves.

- Win by scoring 50 points.
- Lose by:
  - Health reaching 0.
  - Running out of moves.







# Gameplay Flow

1. **Game Initialization:**
  - Select difficulty.
  - Randomly populate grid with items.
2. **Main Loop:**
  - Display grid and game stats.
  - Accept player input for moves or hints.
  - Update player position and game state.
3. **Game End:**
  - Check win or lose conditions.

## Hint System

1. **Purpose:**
  - Guide players towards the nearest treasure or boost.
2. **How It Works:**
  - Calculate the Manhattan distance to the closest **T** or **+**.
  - Display the coordinates of the target cell.
3. **Activation:**
  - Press **h** during the game.

# CODE:

```
#include <stdio.h>

#include <stdlib.h>

#include <time.h>

#define GRID_SIZE 5

#define MAX_MOVES 20

typedef struct {

int x;

int y;

} Position;

char grid[GRID_SIZE][GRID_SIZE];

Position player = {0, 0};

int score = 0;

int moves = MAX_MOVES;

int health = 3; int difficulty;

int boardSize, trapCount, boostCount;

int playerX, playerY, treasureX, treasureY;

char playerName[30];

void initializeGrid() {

srand(time(NULL));

printf("Welcome to the Ultimate Treasure Hunt Game!\n");
printf("Pick your level of madness:\n");
printf("1. Easy (5x5 grid, few traps)\n");
printf("2. Medium (7x7 grid, more traps)\n");
printf("3. Hard (10x10 grid, max traps)\n");
scanf("%d", &difficulty);

if (difficulty == 1) {
boardSize = 5;
trapCount = 5;
boostCount = 2;
} else if (difficulty == 2) {
boardSize = 7;
trapCount = 10;
boostCount = 3;
} else {
boardSize = 10;
trapCount = 20;
boostCount = 5;
}

printf("Enter your name, brave adventurer: ");
scanf("%s", playerName);

for (int i = 0; i < GRID_SIZE; i++) {
for (int j = 0; j < GRID_SIZE; j++) {
grid[i][j] = '*';
}
}

for (int i = 0; i < trapCount + boostCount; i++) {
int x = rand() % GRID_SIZE;
int y = rand() % GRID_SIZE;
char items[] = {'T', 'X', '+'};
grid[x][y] = items[rand() % 3];
}

}

void displayGrid() {

for (int i = 0; i < GRID_SIZE; i++) {

for (int j = 0; j < GRID_SIZE; j++) {

if (i == player.x && j == player.y) {

printf("P ");

} else {

printf("%c ", grid[i][j]);

}

} printf("\n");

}

}

void updatePosition(char move) {

int oldX = player.x; int oldY = player.y;

if (move == 'w' && player.x > 0) player.x--;
if (move == 's' && player.x < GRID_SIZE - 1) player.x++;
if (move == 'a' && player.y > 0) player.y--;
if (move == 'd' && player.y < GRID_SIZE - 1) player.y++;

char cell = grid[player.x][player.y];
if (cell == 'T') {
score += 10;
} else if (cell == 'X') {
health--;
if (health <= 0) {
printf("Game Over! You hit a trap!\n");
exit(0);
}
} else if (cell == '+') {
moves += 5;
}

grid[oldX][oldY] = '*';
moves--;
if (moves <= 0) {
printf("Game Over! You ran out of moves!\n");
exit(0);
}

}

}

void giveHint() {

int closestDistance = GRID_SIZE * GRID_SIZE; int hintX = -1, hintY = -1;

for (int i = 0; i < GRID_SIZE; i++) {
for (int j = 0; j < GRID_SIZE; j++) {
if (grid[i][j] == 'T' || grid[i][j] == '+') {
int distance = abs(player.x - i) + abs(player.y - j);
if (distance < closestDistance) {
closestDistance = distance;
hintX = i;
hintY = j;
}
}
}
}

if (hintX != -1 && hintY != -1) {
printf("Hint: Move closer to (%d, %d) to find a treasure or boost.\n", hintX, hintY);
} else {
printf("No treasures or boosts left on the grid.\n");
}

}

}

int main() {

initializeGrid();

while (1) {

displayGrid();

printf("Score: %d, Health: %d, Moves left: %d\n", score, health, moves);

printf("Enter move (w/a/s/d) or 'h' for a hint: ");

char move; scanf(" %c", &move);

if (move == 'h') {
giveHint();
} else {
updatePosition(move);
}

if (score >= 50) {
printf("You win! You collected enough treasures!\n");
break;
}

}

return 0;

}
```

# Key Functions

1. `initializeGrid()`:
  - Sets up the grid and places items randomly.
2. `displayGrid()`:
  - Shows the current grid with the player's position (P).
3. `updatePosition(move)`:
  - Updates player's position based on input.
  - Handles interactions with items (treasures, traps, boosts).
4. `giveHint()`:
  - Provides coordinates of the nearest helpful item.



# User Interaction

- **Input Options:**
  - Movement: w/a/s/d.
  - Hint: h.
- **Game Feedback:**
  - Display:
    - Current score.
    - Remaining moves.
    - Player's health.
- **End Game Alerts:**
  - Victory message when score reaches 50.
  - Game over if health or moves run out.



# The Final Showdown: Solving the code:

## INPUT

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <time.h>
4
5 #define GRID_SIZE 5
6 #define MAX_MOVES 20
7
8 typedef struct {
9     int x;
10    int y;
11 } Position;
12
13 char grid[GRID_SIZE][GRID_SIZE];
14 Position player = {0, 0};
15 int score = 0;
16 int moves = MAX_MOVES;
17 int health = 0;
18 int difficulty;
19 int boardSize, trapCount, boostCount;
20 int playerX, playerY, treasureX, treasureY;
21 char playerName[30];
22
23 void initializeGrid() {
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47 printf("Enter your name, brave adventurer: ");
48 scanf("%s", playerName);
49
50 for (int i = 0; i < GRID_SIZE; i++) {
51     for (int j = 0; j < GRID_SIZE; j++) {
52         grid[i][j] = ' ';
53     }
54 }
55
56 for (int i = 0; i < trapCount + boostCount; i++) {
57     int x = rand() % GRID_SIZE;
58     int y = rand() % GRID_SIZE;
59     char items[] = {'T', 'X', '+'};
60     grid[x][y] = items[rand() % 3];
61 }
62
63 void displayGrid() {
64     for (int i = 0; i < GRID_SIZE; i++) {
65         for (int j = 0; j < GRID_SIZE; j++) {
66             if (i == playerX && j == playerY) {
67                 printf("P ");
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# Conclusion

- A fun and engaging grid-based game.
- Encourages strategic thinking and resource management.
- Accessible for all players with hint functionality.
- Room for future improvements like:
  - Advanced AI for traps.
  - Multiplayer mode.



**THANK YOU !!**