

## **Assignment Note:**

Dear Candidate,

Thank you for sharing your profile and experience with us.

We would like to clarify that we are currently hiring for a **Junior Full-Stack Developer** role (*0–1 years of experience*), primarily focused on the following technologies:

- Node.js
- React
- Next.js
- TypeScript
- Generative AI

The compensation range for this position is **₹15,000 – ₹20,000 per month**. This role is designed for **early-career developers** who are eager to learn, grow, and build real-world experience.

If this scope and salary range work for you, please confirm, and we will be happy to proceed with the next steps.

**Best regards,**  
*Hiring Team*

## Important Note

There is **no perfect version** expected.

Whatever you are able to build in the time will be evaluated.

We care more about how you think and structure things than polish.

# Project: Shadow Signal

Realtime Multiplayer Social Deduction Game

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## Overview

Build a small multiplayer web game called **Shadow Signal**.

Players join a private room and try to identify who does not belong, based on hidden roles and secret words.

This challenge is designed to test:

- Realtime multiplayer logic
  - System design and state management
  - Frontend and backend integration
  - Use of AI in a real product
  - Code quality and clarity
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## Game Modes

The game supports **two modes**.

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### 1) Infiltrator Mode

**Roles:**

- **Citizens** (majority) – receive the same secret word
- **Infiltrator** (1 player) – receives **no word**

**Goal:**

- Citizens must identify and eliminate the Infiltrator
  - The Infiltrator wins if they survive until the final round
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## 2) Spy Mode

**Roles:**

- **Agents** (majority) – receive the same word
- **Spy** (1 player) – receives a similar but different word

**Example:**

Agents → “Beach”

Spy → “Island”

**Goal:**

- Agents must find the Spy
  - Spy must blend in and avoid detection
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## Game Flow

### 1. Create or Join Room

One player creates a room and gets a room code.

Others join using the code and a player name.

### 2. Lobby

Players wait in the lobby.

The host selects the game mode (Infiltrator or Spy) and starts the game.

### 3. Role and Word Assignment

The server randomly assigns roles.

The server picks a word (or a word pair in Spy mode).

Each player privately receives their own word.

### 4. Speaking Phase

Players take turns, 30 seconds each.

Each player describes their word without saying it directly.

### 5. Voting Phase

All players vote for who they think is suspicious.

## 6. Elimination and Win Conditions

The player with the most votes is removed.

- If the special role is eliminated → Agents / Citizens win
  - If only two players remain and the special role is still alive → Special role wins
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## Technology Requirements

- **Frontend:** Next.js with TypeScript
- **Backend:** Node.js
- **Realtime:** Socket.io
- **Database:** Optional (in-memory is allowed)
- **AI:** Use AI as much as possible for:
  - Word generation
  - Word pairs
  - Prompts or hints
  - Or any other part of the game



## UI / UX Requirements

- The design should look **natural and authentic**, not like a template
  - It should feel like a real party game
  - The game must be **mobile friendly** and usable on small screens
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## Multiplayer Requirements

- Players must be able to join a shared room
  - They must see each other in real time
  - All game state (turns, votes, eliminations) must stay synchronized
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## Infiltrator Mode Dataset

Create a **JSON file** containing groups of similar or related words or names to be used in Infiltrator Mode.

Example:

fruits → Apple, Mango, Banana, Orange  
vehicles → Car, Bike, Bus, Truck  
cities → Paris, London, Rome, Madrid

This dataset should be used by the game to select words.

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## Hosting

The game must be deployed on:

- **Vercel**, or
- Any other public hosting platform

A live playable URL is required.

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## Deliverables

Please submit:

1. A **live game URL**
  2. A **GitHub repository**
  3. A **small code document** (README or PDF) explaining:
    - Architecture
    - Realtime logic
    - How AI is used
  4. **Clean, readable, well-structured code**
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## Review Criteria

We will review based on:

- Game logic correctness
- Multiplayer and realtime quality
- Use of AI
- Code quality and TypeScript usage
- UI / UX and mobile friendliness
- Overall completeness



## Deadline

**Weekly deadline: 17th January EOD**

If you need more time, feel free to ask before the deadline.

Eg JSON for words

```
{  
  "domains": [  
    {  
      "name": "Food & Cuisine",  
      "words": [  
        {  
          "word": "Pizza",  
          "similar": ["Pasta", "Burger", "Sandwich", "Taco", "Sushi"]  
        },  
        {  
          "word": "Coffee",  
          "similar": ["Tea", "Espresso", "Cappuccino", "Latte",  
"Mocha"]  
        },  
        {  
          "word": "Chocolate",  
          "similar": ["Candy", "Caramel", "Fudge", "Brownie",  
"Truffle"]  
        },  
        {  
          "word": "Salad",  
          "similar": ["Soup", "Appetizer", "Side dish", "Coleslaw",  
"Caesar"]  
        }  
      ]  
    }  
  ]  
}
```

```
        ],
    },
    {
        "name": "Animals",
        "words": [
            {
                "word": "Dog",
                "similar": ["Cat", "Wolf", "Fox", "Puppy", "Husky"]
            },
            {
                "word": "Elephant",
                "similar": ["Rhino", "Hippo", "Giraffe", "Mammoth",
"Buffalo"]
            },
            {
                "word": "Eagle",
                "similar": ["Hawk", "Falcon", "Owl", "Vulture", "Condor"]
            },
            {
                "word": "Dolphin",
                "similar": ["Whale", "Shark", "Seal", "Porpoise", "Orca"]
            }
        ]
    },
    {
        "name": "Sports & Activities",
        "words": [
            {
                "word": "Soccer",
                "similar": ["Football", "Basketball", "Hockey", "Rugby",
"Volleyball"]
            },
            {
                "word": "Swimming",
                "similar": ["Diving", "Surfing", "Kayaking", "Snorkeling",
"Water polo"]
            },
            {

```

```
        "word": "Tennis",
        "similar": ["Badminton", "Squash", "Ping pong",
"Racquetball", "Pickleball"]
    },
{
    "word": "Running",
    "similar": ["Jogging", "Sprinting", "Marathon", "Track",
"Cycling"]
}
],
},
{
    "name": "Entertainment",
    "words": [
        {
            "word": "Movie",
            "similar": ["Film", "Cinema", "Theater", "Show",
"Documentary"]
        },
        {
            "word": "Concert",
            "similar": ["Festival", "Gig", "Performance", "Recital",
>Show"]
        },
        {
            "word": "Video game",
            "similar": ["Board game", "Card game", "Mobile game",
"Console", "PC game"]
        },
        {
            "word": "Netflix",
            "similar": ["Streaming", "TV show", "Series", "Binge-watch",
>Episode"]
        }
    ]
},
{
    "name": "Travel & Places",
```

```
"words": [
  {
    "word": "Beach",
    "similar": ["Ocean", "Coast", "Shore", "Island", "Resort"]
  },
  {
    "word": "Mountain",
    "similar": ["Hill", "Peak", "Summit", "Valley", "Cliff"]
  },
  {
    "word": "Hotel",
    "similar": ["Motel", "Resort", "Hostel", "Inn", "Lodge"]
  },
  {
    "word": "Airport",
    "similar": ["Terminal", "Flight", "Airplane", "Runway",
"Gate"]
  }
]
```