



KAUNO TECHNOLOGIJOS UNIVERSITETAS

FACULTY OF INFORMATICS

**T120B166 Development of Computer Games and Interactive
Applications**

Party Table Game - Saboteur

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Game description

1. **3D or 2D?** 3D
2. **What type is your game?** Board sgame
3. **What genre is your game?** Party game
4. **Platforms:** PC
5. **Scenario description:** In this game action is set in a mine. Players take on the role of dwarves, some are miners, some are saboteurs, but no one knows who is on their side. For miners goal is to get to the gold until the cards run out. For saboteurs the goal is to stop miners from reaching gold. After three rounds the player with the most gold wins.

Laboratory work #3

List of tasks

1. Add menu system
2. Options
3. Have GUI elements
4. Attack mechanics
5. AI implementation
6. Health/Power ups
7. 5 spawn points
8. Scoring system
9. Game over condition
10. High scores

Solution

Task #1. Add menu system



Figure 1 Main menu

Added menu system:

- Start – move to main scene and start the game
- Options – open options menu
- Highscores – show highscores
- Exit – quit game

Task #2. Options

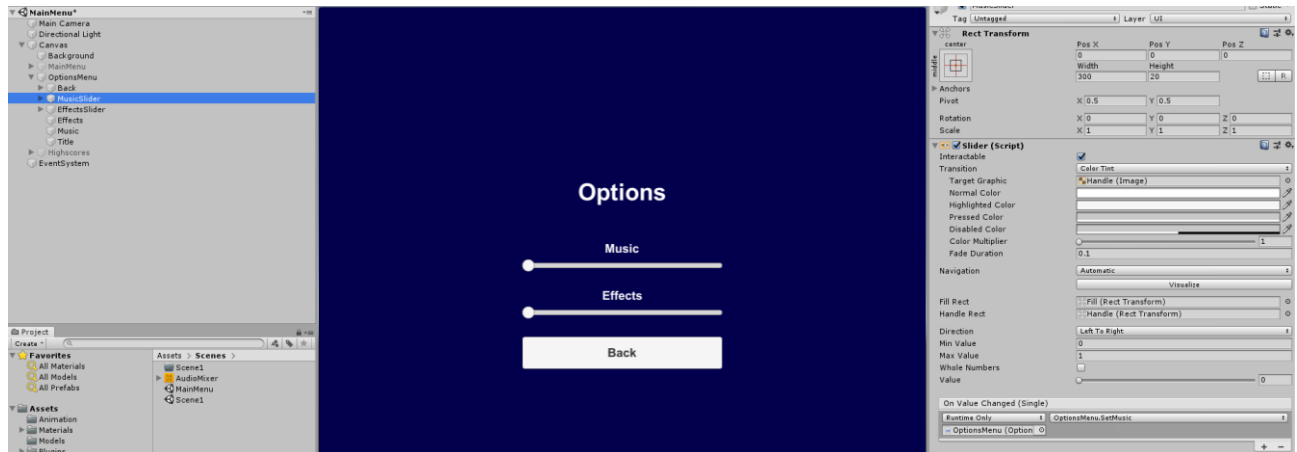


Figure 2 Options menu

Options menu contains settings for music and effects volume.

Task #3. GUI elements

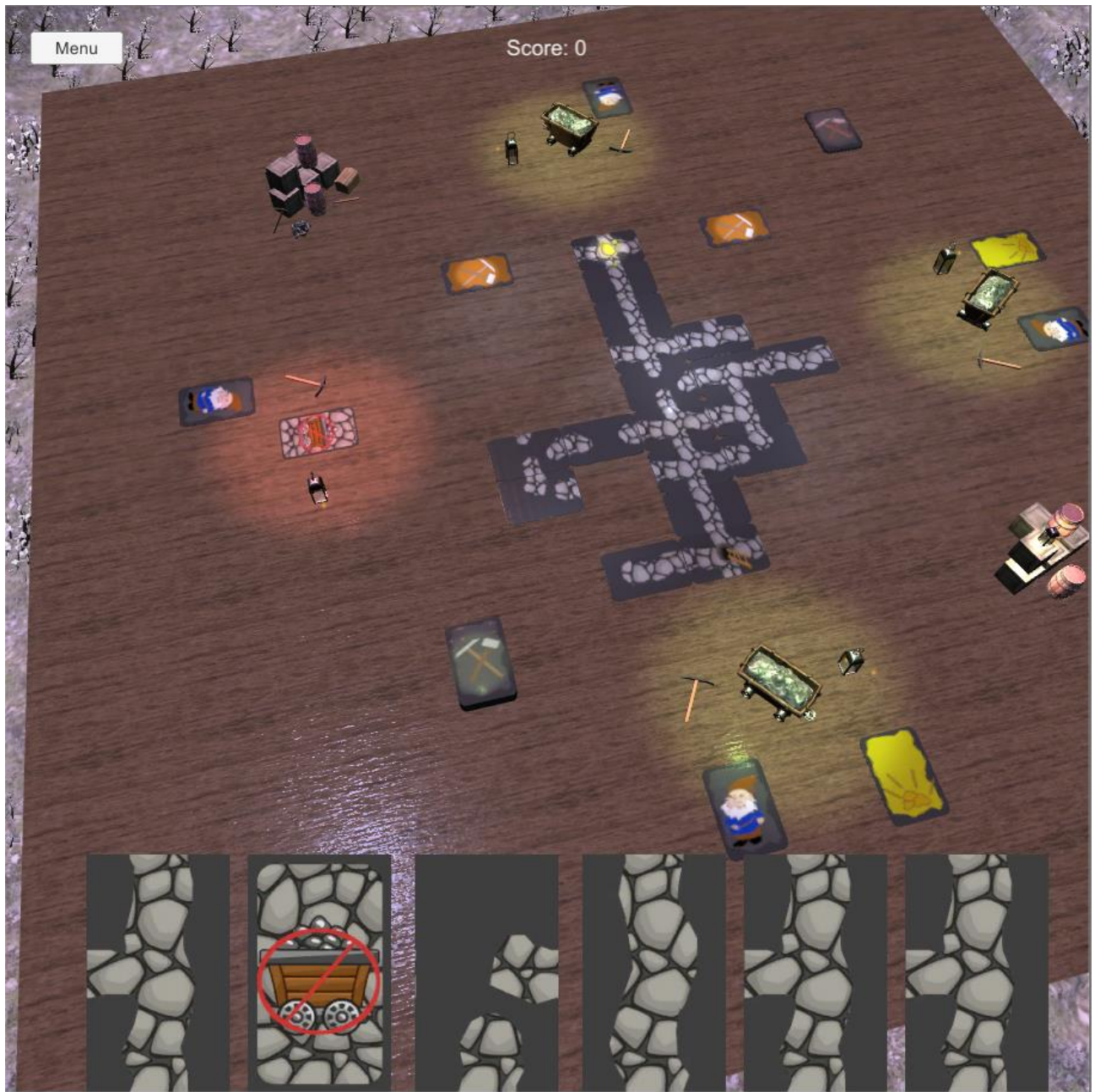


Figure 3 GUI

There are 3 main GUI elements:

- Menu button (top left)
- Current score (top center)
- Current cards in player's hand (bottom)

Task #4. Not implemented

Task #5. Not implemented

Task #6. Not implemented

Task #7. Spawn points

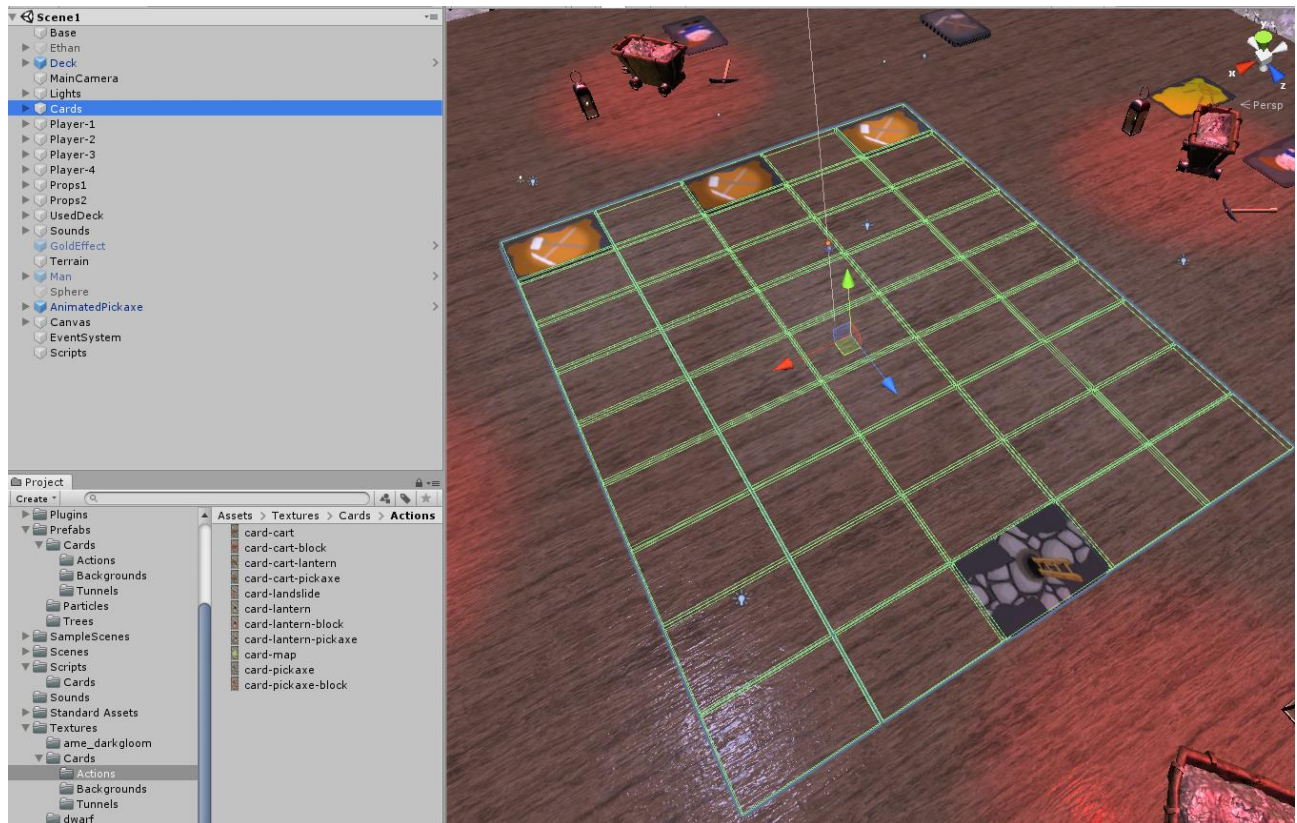


Figure 4 Grid of invisible objects set as spawnpoints

Spawn points for cards are invisible objects across the grid. Cards are instantiated from prefabs.

```
var rotation = Quaternion.Euler( x: -90, y: 90, z: 180);  
cardObject = Instantiate(newCard.Prefab, transform.position, rotation);  
card = newCard;
```

Task #8. Scoring system

In this game score is gold. After every match winner gets 1-5 gold. The players with highest score after 3 matches wins.



Figure 5 Score display

```

2 usages
private void UpdateScore()
{
    ScoreObject.text = $"Score: {score}";
}

1 usage
public void GameOver(int gold)
{
    score += gold;
    UpdateScore();
    GameOverScreen.SetActive(true);

    var currentHighscore = PlayerPrefs.GetFloat(key: "highscore", defaultValue: 0);
    if (score > currentHighscore)
    {
        PlayerPrefs.SetFloat("highscore", score);
    }
}

```

Task #9. Game over condition

Game is over when dwarfs reaches gold or runs out of cards. Random number of gold (1-5) is given for the winners.

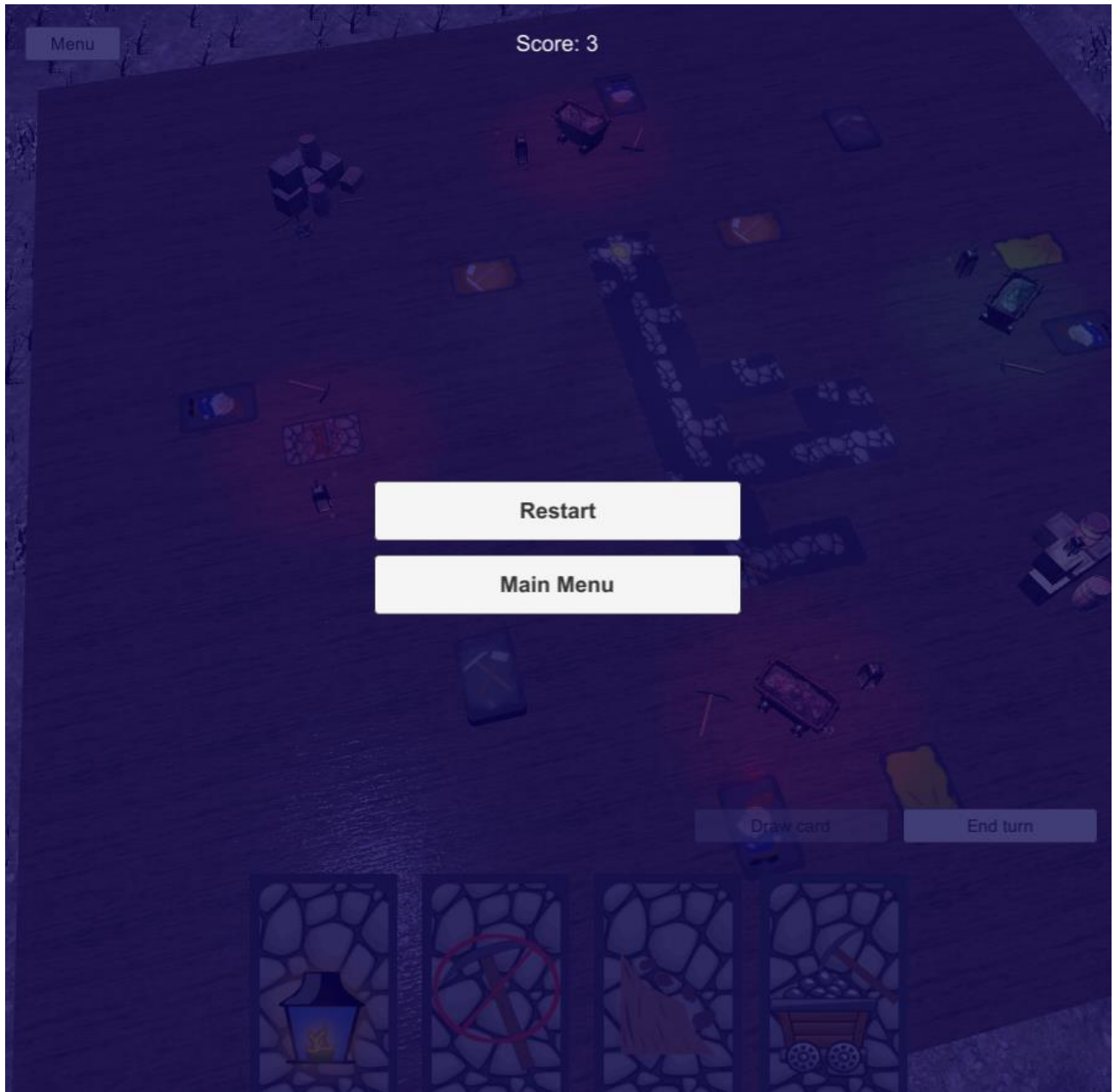


Figure 6 Game over screen

When player gets to the finish card, it is flipped and if it has gold it is added to the score and game is over.

```

1 usage
private void Flip()
{
    if (!IsFinnish)
    {
        return;
    }

    cardObject.transform.Rotate(new Vector3( x: -180, y: 0, z: 0));
    if (gold > 0)
    {
        main.GameOver(gold);
    }
}

```

Task #10. Highscores

Highscore is saved in player prefs, and updated after every game.

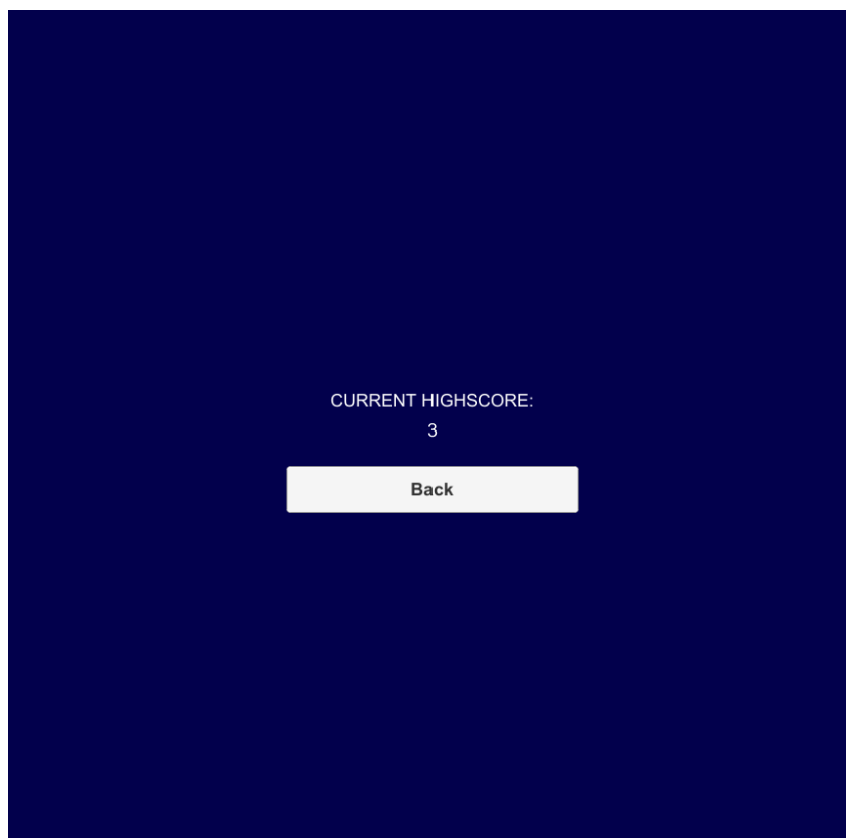


Figure 7 Highscore view

```

var currentHighscore = PlayerPrefs.GetFloat("highscore", 0);
if (score > currentHighscore)
{
    PlayerPrefs.SetFloat("highscore", score);
}

```

Defense task

Update code so every player has a card with a straight tunnel.

Added extra card with UP and DOWN connections for every player on start.

```
var cc = AllCards.FirstOrDefault(x =>
    x.connections.Contains(Card.Directions.Up) && x.connections.Contains(Card.Directions.Down));
for (var i = 0; i < Players.Count; i++)
{
    Players[i].Id = i;
    Players[i].DropHand();
    for (var j = 0; j < 5; j++)
    {
        Players[i].AddCard(DrawCardFromDeck());
    }
    Players[i].AddCard(cc);
}
```

Literature list

Resources used from:

- <https://www.textures.com/download/pbr0139/133174>
- <https://www.textures.com/download/3dscans0079/128150>
- <https://www.freelancer.com/contest/Concept-Art-SKETCH-Gnome-390351-byentry-8768095>
- https://www.freepik.com/free-vector/cartoon-stone-texture_976364.htm
- <https://www.vectorstock.com/royalty-free-vector/mine-cart-with-coal-vector-1747485>
- https://all-free-download.com/free-vector/download/treasure-map-clip-art_23028.html
- <https://www.kisspng.com/png-cartoon-ladder-illustration-cartoon-wooden-ladder-497343/>
- <https://www.turbosquid.com/3d-models/pickaxe-obj-free/912027>
- <https://sketchfab.com/3d-models/mine-cart-2beeab5f44704421bc10cd310db96860>
- <https://www.textures.com/download/3dscans0110/130564>
- <https://www.textures.com/download/pbr0031/133067>
- <https://sketchfab.com/3d-models/lantern-final-aead6bb3bab344eaab541c5ac52c657c>
- <https://sketchfab.com/3d-models/40-rocks-a6c5ab5b438f473cb1cafd4099e1657>
- <https://free3d.com/3d-model/crate-86737.html>
- <https://free3d.com/3d-model/barrel-7685.html>
- <https://free3d.com/3d-model/wooden-chest-44006.html>
- sounds from <https://www.productioncrate.com> and <https://www.zapsplat.com>
- <https://www.textures.com/download/pbr0172/133207>
- <https://www.textures.com/download/asphaltcloseups0064/12319>
- <http://www.custommapmakers.org/skyboxes.php>
- <https://sketchfab.com/3d-models/elysiumvr-male-character-rigged-template-4d0f03c673474921804254658666710d>