

COURSEWORK 2:
Product Documentation

Team Purple:

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1 User Manual

1.1 Introduction

This guide will guide you through every step necessary to start up and enjoy the Drill Dungeon Game. We hope that you will enjoy your adventures through the depths of exciting but dangerous dungeons.

1.2 The Objectives

Before diving into the game, it is important to highlight the objectives of your journey. You are herewith announced commander of your own drill. Congratulations commander! Your target is to explore and uncover the secrets buried in the endless depths of a new discovered planet. But be aware, this will be no ordinary recognisance mission. Our scanners have picked up unknown structures deep below the surface. We are assuming that hostile life forms will be present as well.

However, there is also good news commander, spectral analysis of the crust layers have shown that minerals such as gold and coal are present. This is excellent news, since your drill will be running on coal to keep you and your crew alive. Gold on the other hand will surely come in handy to buy new upgrades from local non hostile life forms. Our scientists made sure that your drill features the newest attack laser turret and modern plasma shield generator. These will make sure to protect you and your crew during your descent into the unknown.

Your main object herewith is to explore and scout the depths of the novel planet and report back all gathered data. We expect you to reach the core of the planet and come back safely. Good luck commander! We and your crew are counting on you!

1.3 How to start the game

Make sure that you have followed the Installation guide before continuing with this section. Now, please navigate into the Drill Dungeons Folder and start up the main.py python file:

```
01/12/2020 18:07 <DIR> .
01/12/2020 18:07 <DIR> ..
25/11/2020 19:58      3,768 .gitignore
02/12/2020 01:42 <DIR> DrillDungeonGame
25/11/2020 19:58 <DIR> Game-Idea
01/12/2020 18:07      555 main.py
25/11/2020 19:58      22 README.md
25/11/2020 19:58      28 requirements.txt
01/12/2020 18:07 <DIR> resources
02/12/2020 01:42 <DIR> tests
29/11/2020 16:02 <DIR> website
25/11/2020 19:58      0 __init__.py
      5 File(s)      4,373 bytes
      7 Dir(s) 267,530,981,376 bytes free

C:\Users\Max\Documents\Bath-CompScience\Courses\SoftwareEng\CW2\Shared-Repo\DrillDungeonGame>python main.py
```

Figure 1: Start main.py

You should now see a new window opening up which will bring you directly to the Drill Dungeon Game Main Menu:

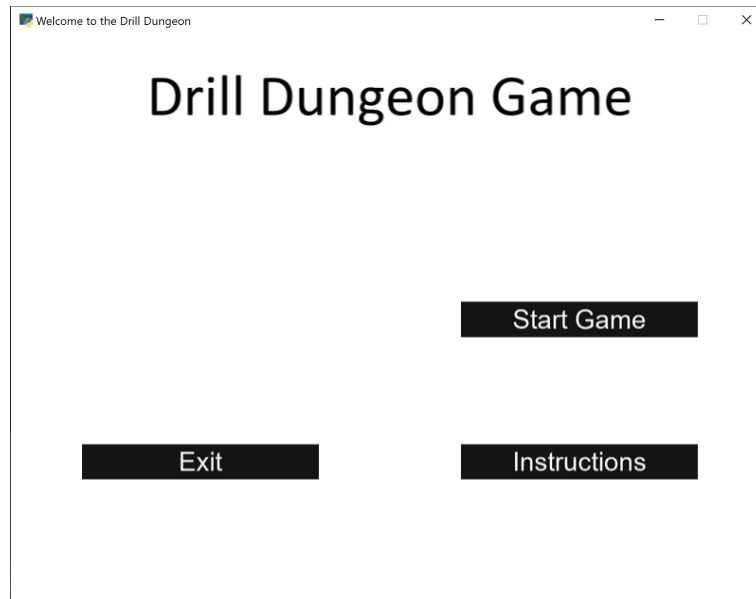


Figure 2: Main Menu

On the main menu, you have the chance to click with a left mouse click on the instruction button which will display a short summary of all basic controls over which we will go now in detail. Furthermore, from the instruction menu you will be able to click on another summary that will display the main objectives of the game. If you wish to exit the game, just click on the exit button.

Please continue by clicking on the "Start Game" button with a right mouse click. The game will now begin.

1.4 Drill Operators Manual

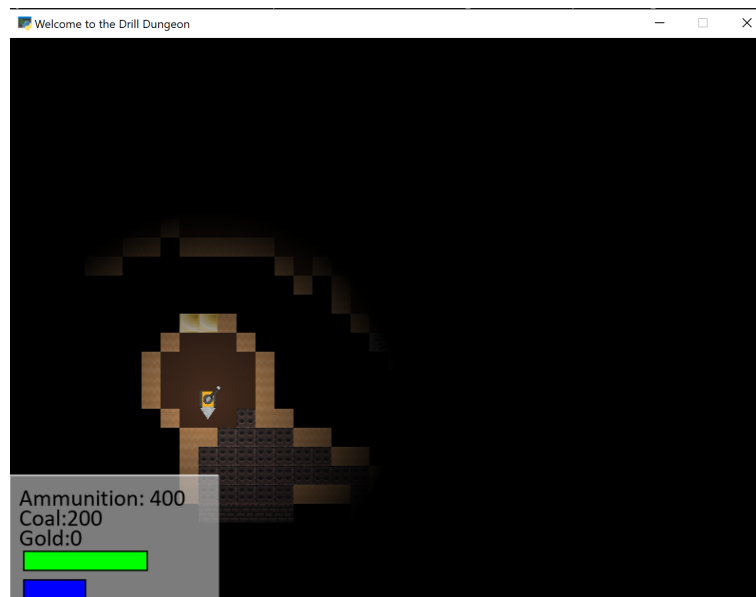


Figure 3: Start Game

Please have a look at the lower left corner. This is your HUD which will provide you with mission vital information and should be the best metric to decide tactical decisions during your adventure. The green

bar represents your drills health. If the green bar is completely depleted your drill will explode and your mission failed:

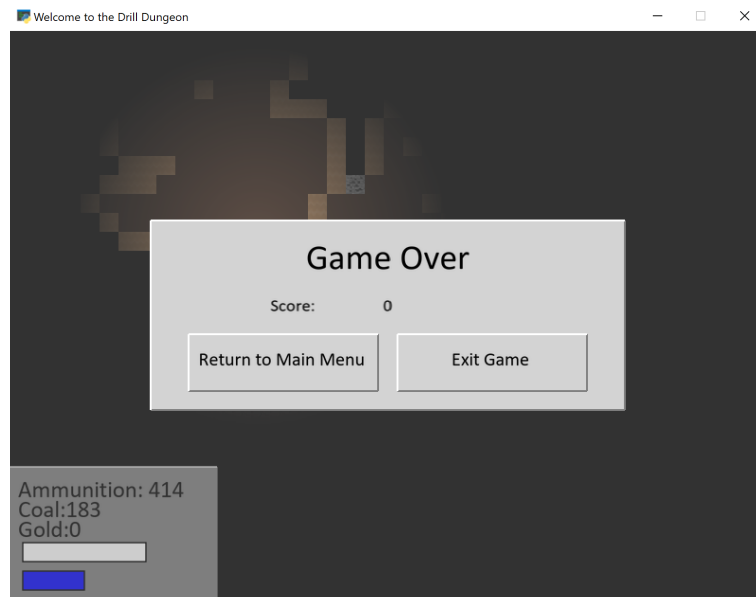


Figure 4: Game over menu

So keep an eye on this metric before deciding to engage any further enemies. Below the green bar you will find your energy level that will power your shield. The shield will protect your drill from damage however it will not last forever. When depleted, the shield will disintegrate and leave you vulnerable to damage from enemies. But don't worry, your shield will recharge over time.

The values above health and the energy level will inform you about your drills inventory. Your inventory consists of Ammunition which supplies your turret with bullets. Coal, which serves as fuel for your drill and gold which can be used later in the game to purchase upgrades for your drill.

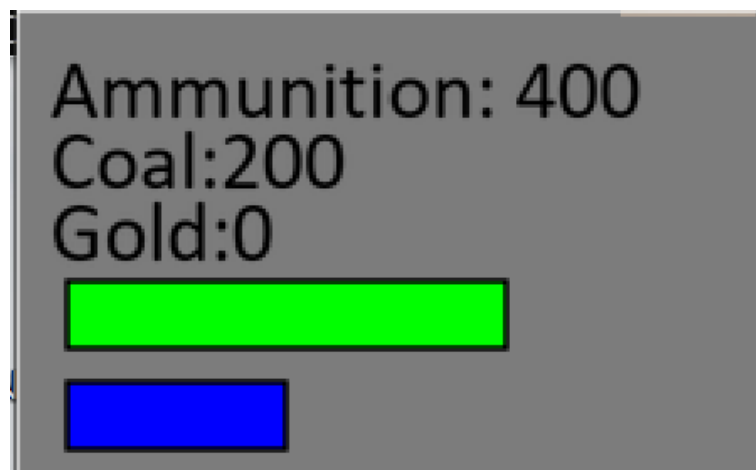


Figure 5: Player's HUD

After you have made yourself familiar with the HUD, it's now time to learn how to drive the drill. By pressing the keys W, A, S, D you will be able to navigate the drill forward, left, backward and right. Your drill is also capable of drilling diagonally which can be done by pressing a pair of the in the former mentioned keys. As an example, if you wish to drill diagonally up to the right, press W and D simultaneously. As you start driving and exploring the dungeon, you will notice that the drill drills through the dirt blocks and uncovers new paths and elements.

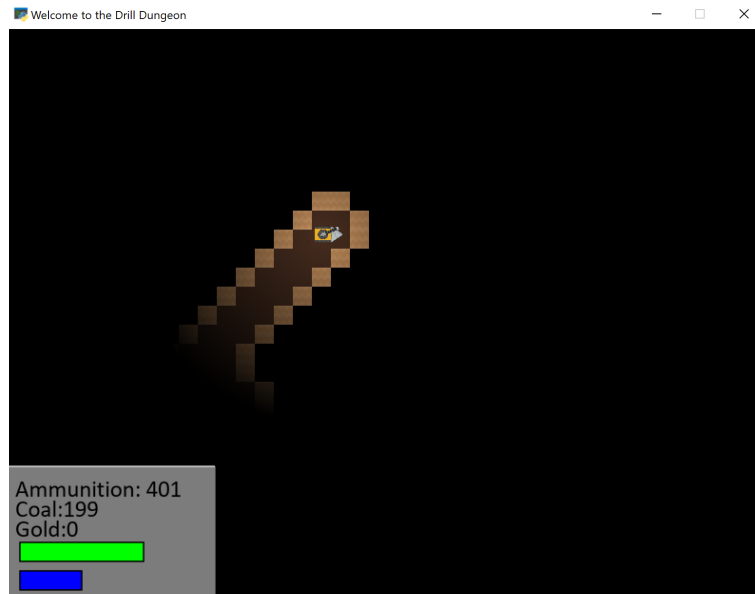


Figure 6: Navigating the Drill

Have you noticed something in the HUD?... That's correct! Navigating the drill through the dungeon slowly depletes your coal supply. So make sure to drill for new coal because if your coal supply is fully depleted your drill will not move and its Game over. However, there is something else, if you look closely, ammunition has increased! That's good news! Driving will recharge not only the energy for your energy shield but also add bullets to your ammunition inventory.

Navigating through the dungeon will sooner or later lead to discoveries of resources. These resources are coal and gold. Coal, as explained before, will serve as your drills fuel. Gold on the other hand will serve later as currency for new drill upgrades.

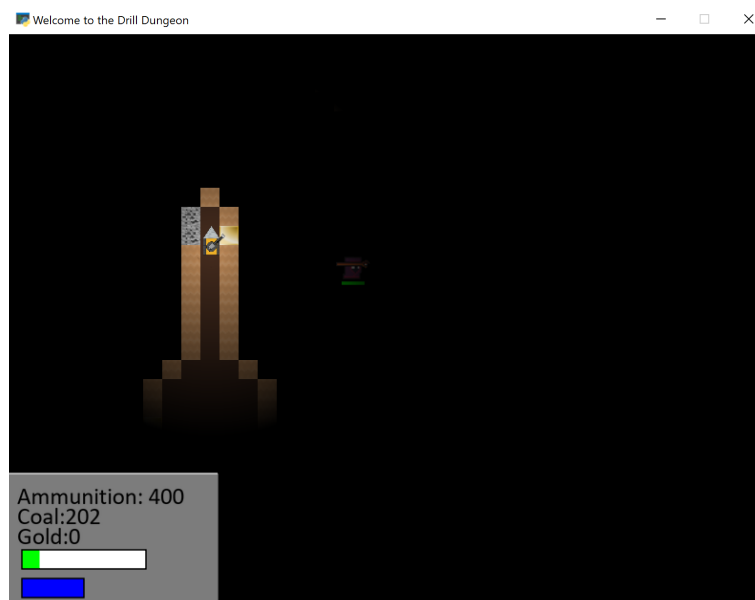


Figure 7: Resources

To collect those precious resources your simply need to drill through them. Next, you will need to learn on how to self defend. If you are spotted by a hostile, it is essential for your survival to now how to use your energy turret. To fire the turret, you need to aim by pointing the mouse into the direction you want to fire and click the left mouse button to fire the turret. By default, the turret will fire a single shot

for each click on the left mouse button:

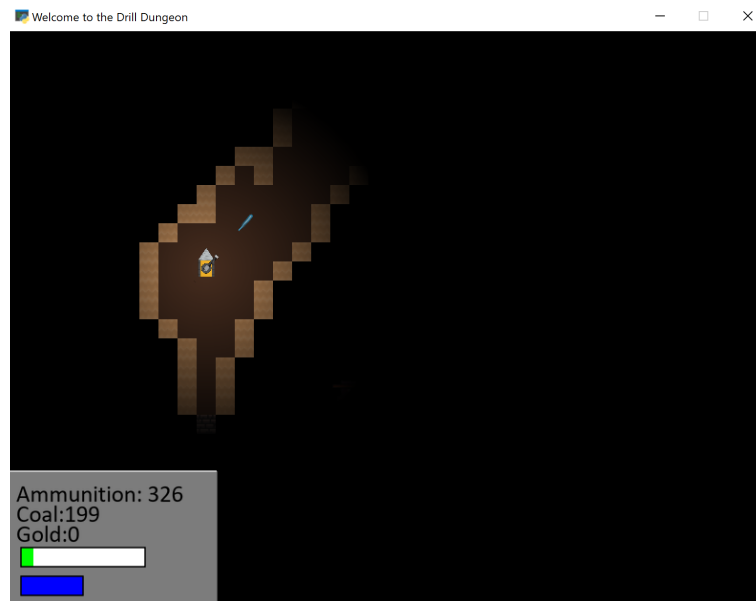


Figure 8: Single shot mode

For close contact combat your turret is capable of changing the fire mode to buck shot. This is done by clicking the B key:

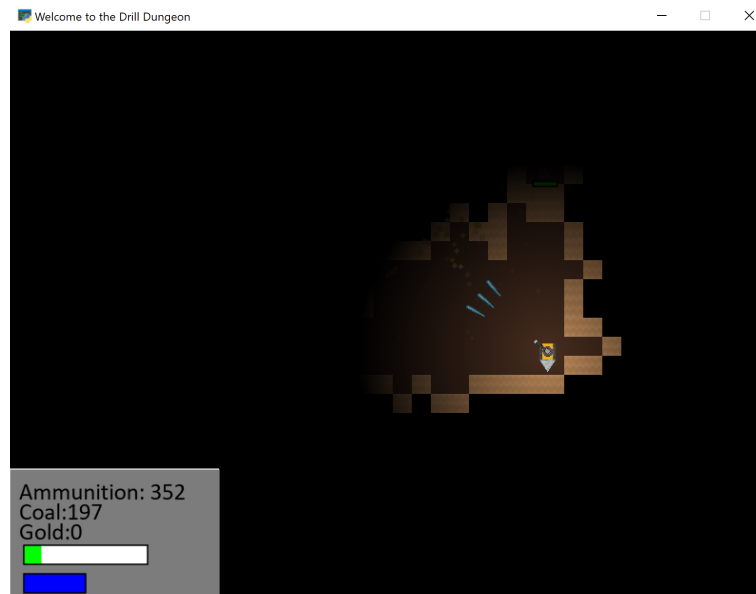


Figure 9: Buck shot

A word of caution, bullets will not only defend from enemies but also destroy valuable gold and coal blocks.

Having learned the basics of shooting, now is the time to learn more about the enemies you will be encountering during the game. Enemies will be hiding in the dark and might catch you by surprise so be careful while exploring. However, sometimes you might see the enemy before he can see you. This will give you a strategic advantage. As a tip, prior taking the decision to engage the enemy, have a look at your inventory, health and energy shield levels:

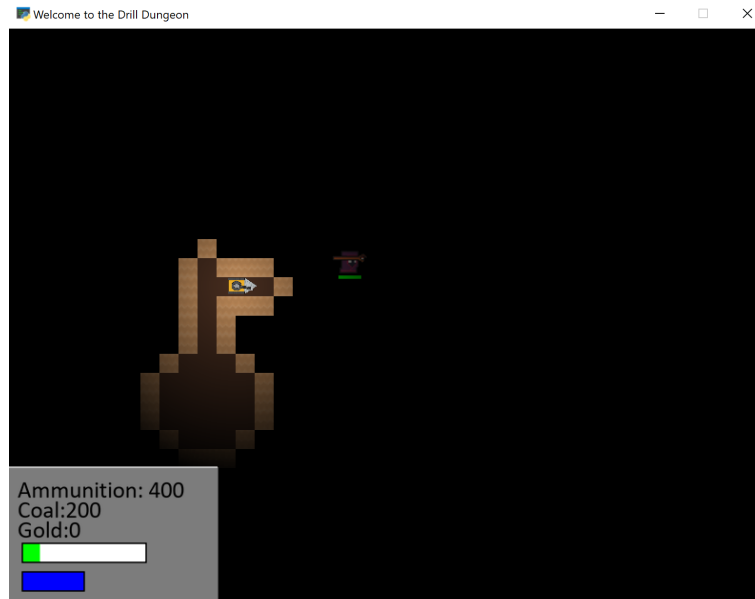


Figure 10: Enemy

As you can see in the above picture, the enemy hasn't detected us yet and we might decide to avoid combat because of our low health level. If you look closely, you will notice a similar health bar below the enemy. In combat you want to make sure that this health bar runs out faster than your own. In case it doesn't go as planned, it might be necessary to consider a tactical retreat. As a tip, if you need to retreat, use the shield to buy enough time to outrun the enemy. You can activate your shield by holding the right mouse button:

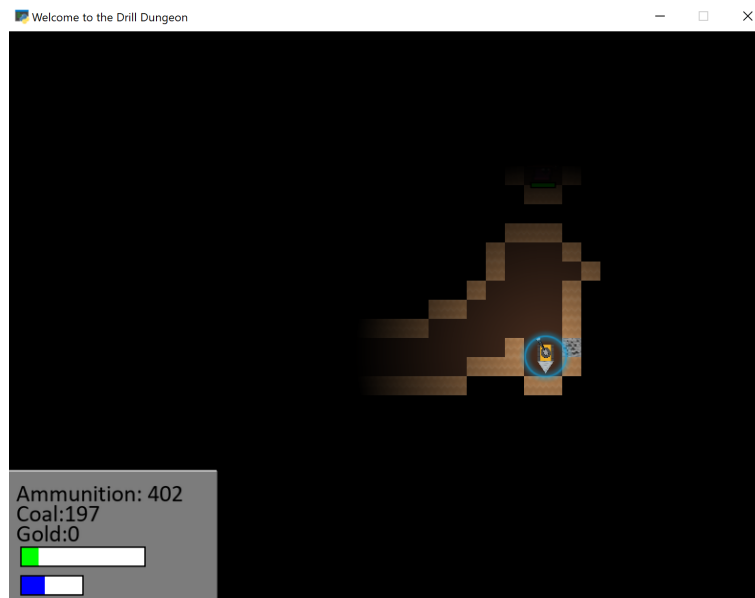


Figure 11: Shield

After having learned the basics of combat, let's have a look at the options you have to aid you in the quest of exploring the depths of the dungeons. During the game, you will be able to encounter friendly locals in form of shops:

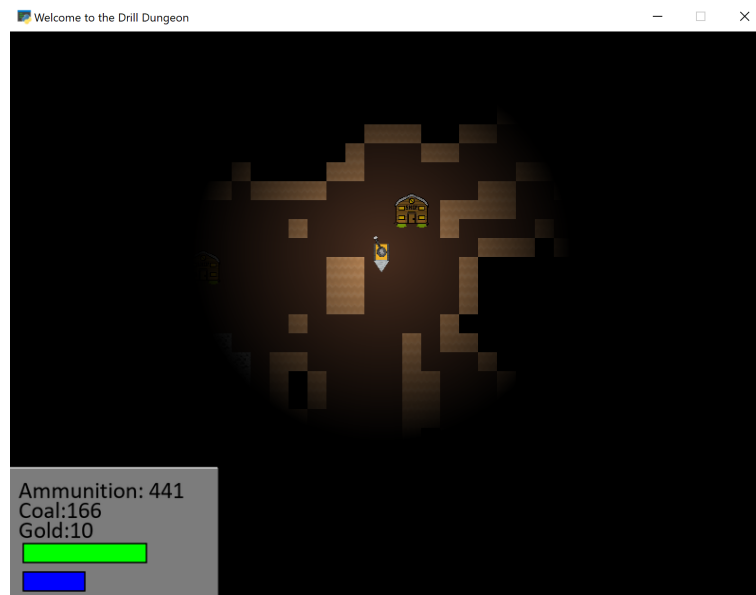


Figure 12: Shop

To interact with the shop, drive in its proximity and click on it with a left mouse click. A shop menu will open up and offer you a variety of purchasable upgrades:

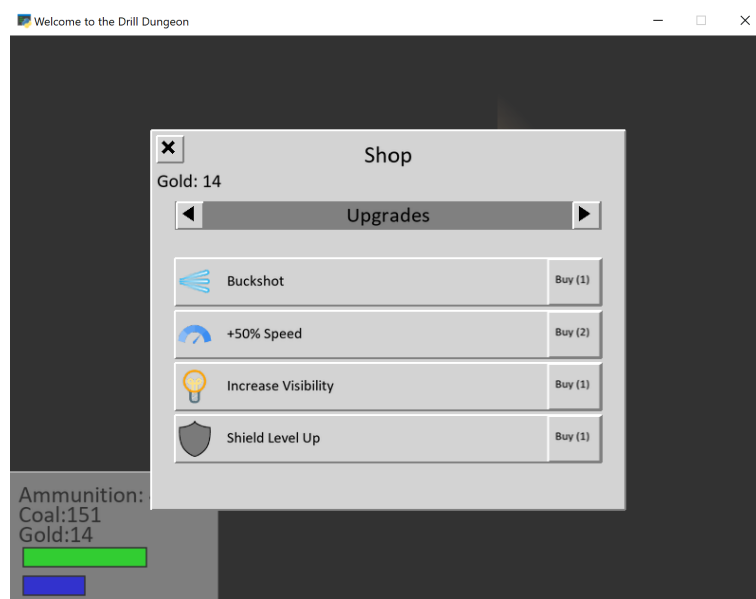


Figure 13: Shop menu upgrades

The shop offers furthermore to replenish your ammunition inventory:

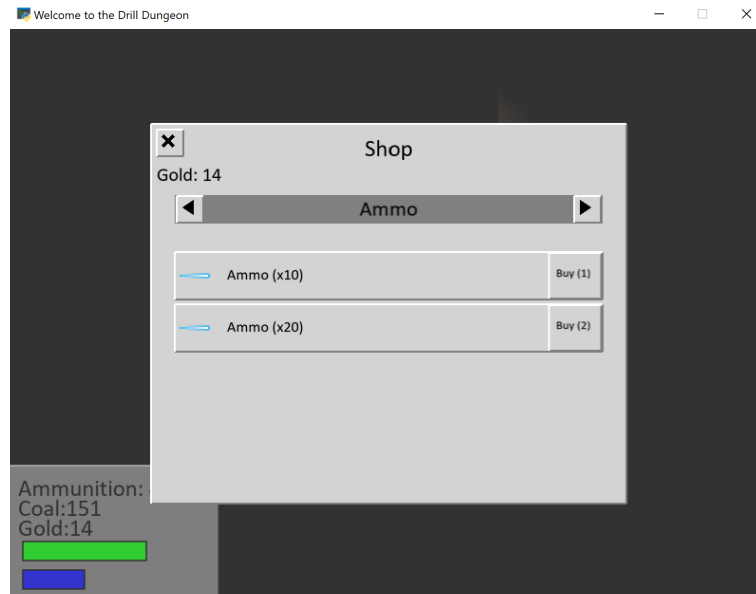


Figure 14: Shop menu ammunition

During your journeys you will encounter not only natural caves and resources but also enemy built structures. These structures are usually made out of material that cannot be destroyed by shooting at it or drilling through it. Have a look at the example below:



Figure 15: Dungeon example

The walls of this artificially made dungeon are out of the material you will not be able to destroy. Make sure to keep this in mind when facing enemies. It might come in handy or pose additional challenges.

Next, to advance further to the core of the planet you will need to find a drill friendly surface:

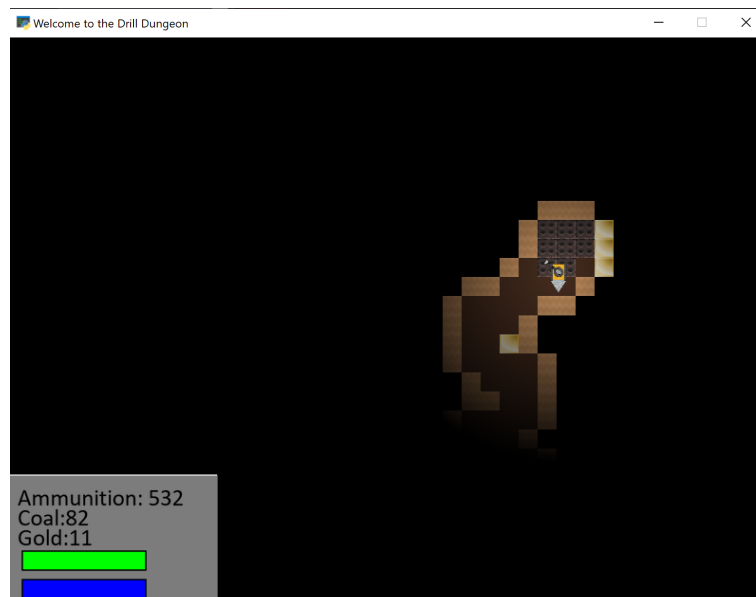


Figure 16: Tiles to drill down/up

Once you have found these specific tiles, you will be able to drill one more level down by pressing the K key. But drilling down will have a price. You will loose x amount of coal and conditions on the next level will be more harsh. Your view will decrease and the speed of the drill will be reduced as well. Hint: Make sure to visit a shop and upgrade your drill before drilling into the next layer.

Furthermore, if you decide to return back into the prior layer you will be able to do so by searching for drill friendly tiles and press the U key. Keep in mind that this manoeuvre will also cost x amount of coal.

Lastly, if you need a break or want to exit the game, you can pause the game by pressing the ESC key. This will open up the pause menu:

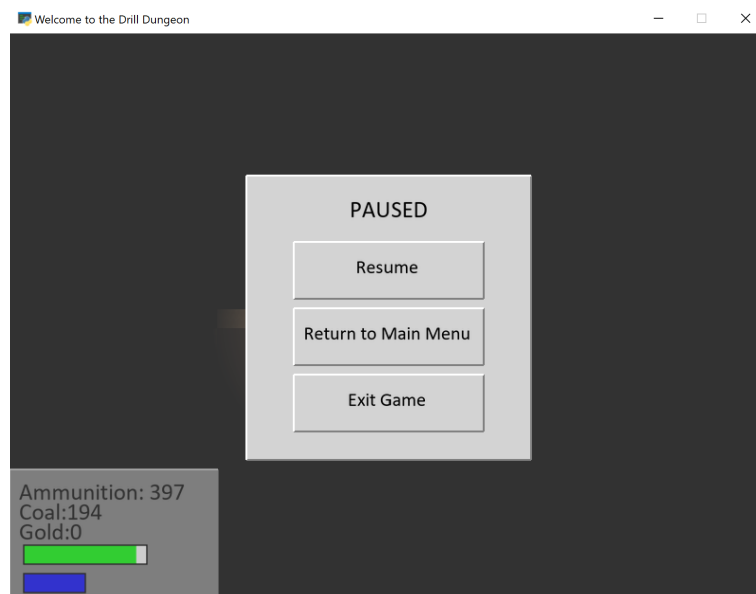


Figure 17: Pause Menu

2 Installation Guide

2.1 Windows Installation guide for developers

2.2 System Requirements

2.2.1 Setting up your development environment

Install Python

1. There are various ways to install Python on your machine. This guide demonstrates one way, so for alternative solutions, please refer to: <https://docs.python.org/3/using/windows.html>
2. Navigate to <https://python.org/downloads>
3. Download the latest Python version by clicking the yellow button labelled “Download Python”. This library requires Python 3.8.5 or higher.

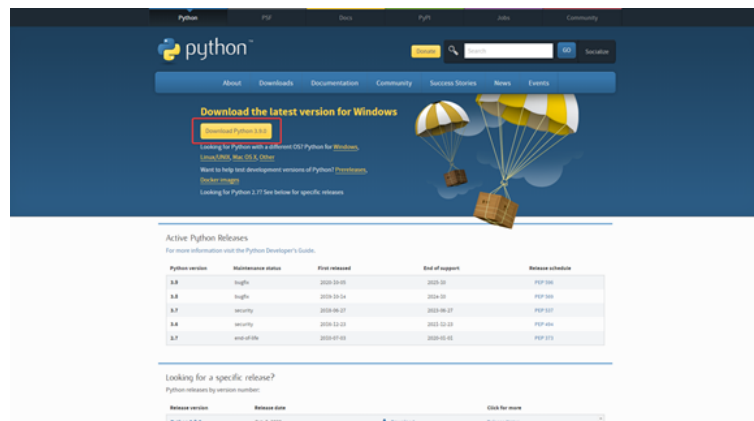


Figure 18: Python.org download

4. Make sure to check the box at the bottom labelled “Add Python to PATH” at the bottom before pressing “Install Now” so that you can run Python from the Windows command line.



Figure 19: Add Python 3.9 to PATH

Install Git

1. Git installer can be downloaded at: <https://git-scm.com/downloads>

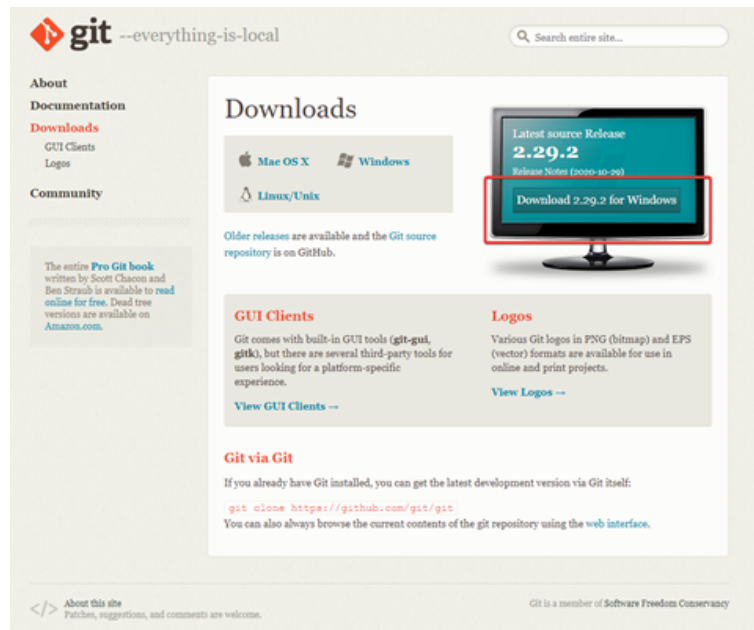


Figure 20: Git download

2. Navigate through the installer until installation is completed.

2.3 Setting up your virtual environment

Open the Windows command line and navigate to the directory you would like to install to repository.

```
cd path/to/directory
```

Clone the repository

```
git clone git@github.bath.ac.uk:hs706/DrillDungeonGame.git
```

Navigate to the created directory.

```
cd DrillDungeonGame
```

Make sure pip is up to date.

Windows:

```
py -m pip install --upgrade pip
```

Linux or macOS:

```
python3 -m pip install --user --upgrade pip
```

Install the virtual environment package to your base Python installation

Windows:

```
py -m pip install --user virtualenv
```

Linux or macOS:

```
python3 -m pip install --user virtualenv
```

Create a virtual environment

Windows:

```
py -m virtualenv -p py .venv
```

Linux or macOS:

```
python3 -m virtualenv .venv
```

Activating your virtual environment

Windows:

```
..\venv\Scripts\activate
```

Linux or macOS:

```
source .venv/bin/activate
```

Installing requirements to your virtual environment

Windows:

```
py -m pip install -r requirements.txt
```

Linux or macOS:

```
python3 -m pip install -r requirements.txt
```

Running the game

Windows:

```
py main.py
```

Linux or macOS:

```
python3 main.py
```

Running the tests:

Windows, Linux or macOS:

```
pytest tests/
```

3 Maintenance Guide