

# FireFurnace



Tiberiu M. Toma, Joshua D. Clarke, Oscar O. Ekwueme

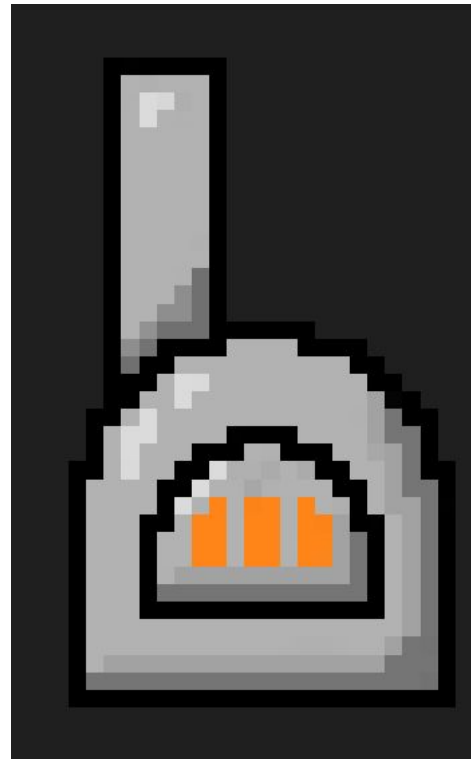
# Who is Furnace Man (Main Character)



Our **main character** was created by a brilliant but eccentric inventor named Professor Ignatius Forge.

Professor Forge was a visionary engineer who aimed to bring to life a mechanical being capable of withstanding extreme heat and harnessing the power of the very furnaces that defined Emberforge

However professor Forge did not take in account that his illness would take his life before he could finish his work, Leaving the furnace without a body to operate..



# Enemies



For this game we came up with **2 simple enemies** that Furnace man (MC) will be facing.

One of these opponents will be dropping one coal immediately after death, which the “MC” will store and possibly use to regenerate fuel / health.

The other enemy is a simple ice enemy who has nothing too special about itself.

Although both enemies will add 10 score to the total score amount.



# Wood monster



This was our first enemy sprite. we didn't really need to think too hard for this design since burnt wood turns to charcoal which fuels a furnace. In terms of design we simply looked at some textures for wood and chose an oak appearance for it. We gave it an eye and eyebrow so it looks somewhat alive and the blue at the bottom of the eye is meant to represent tears giving it more of a human characteristic. We also gave it legs to make it more reasonable when it comes to moving.



# Ice Enemy



This is our Ice Enemy, the ice enemy is our second enemy for our game. Instead of making a regular Ice cube as our enemy we decided to do some research on what a good ice enemy would be. What inspired us to design this enemy was from a popular game franchise Super Mario Bros and the enemy was called Freezy. Instead of making our enemy very plain we added in some more detail and more shades of blue, making it stand out more.



[Ice Enemy Reference](#)



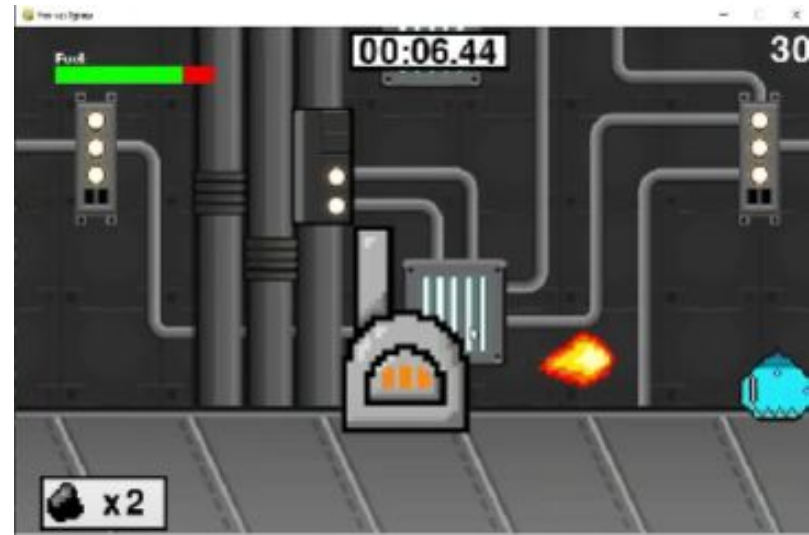
# Main Objective: Fornax Ignea

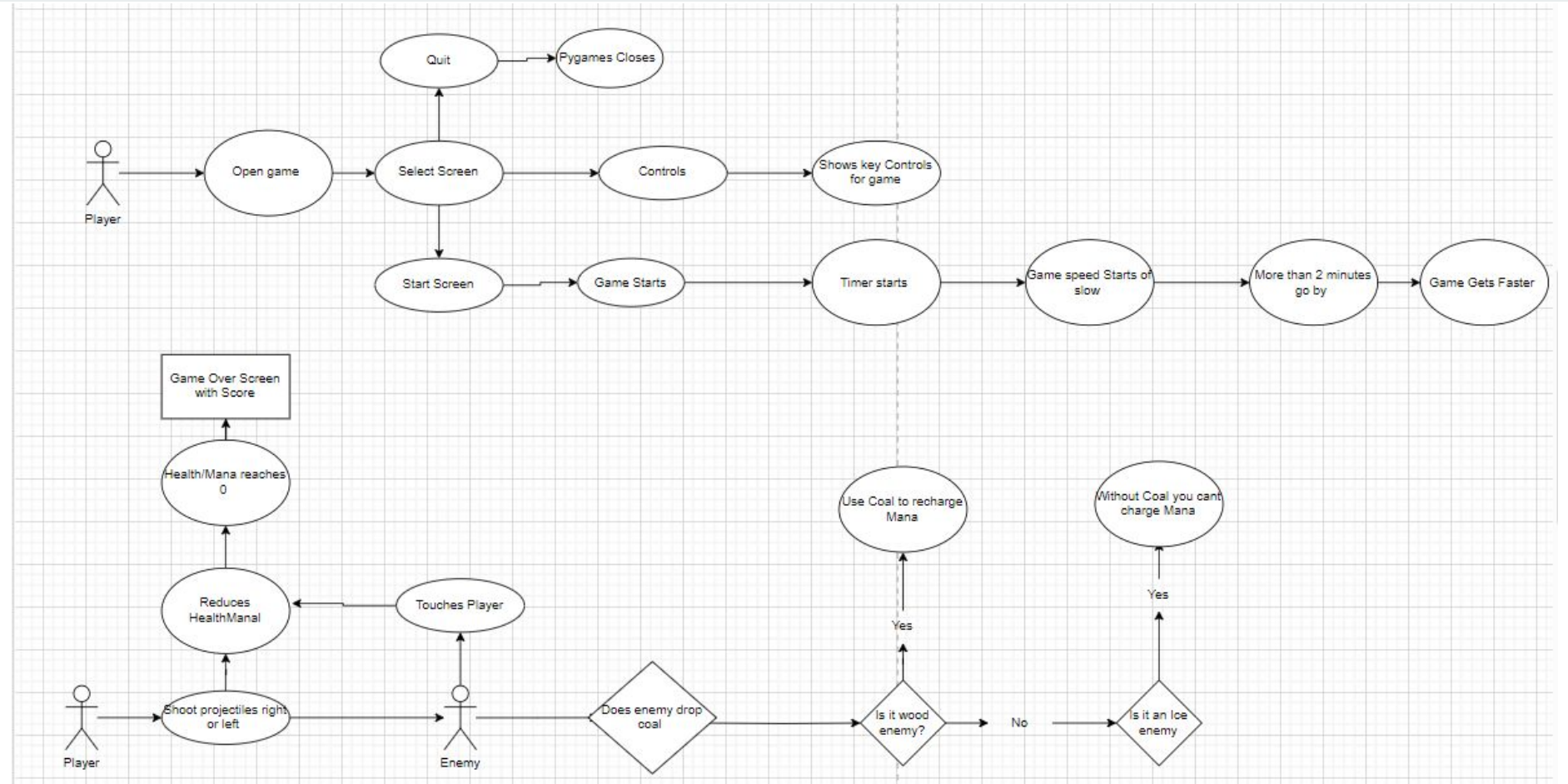
J

The Main Objective is to survive incoming enemies coming from the left and right direction while using the fire projectiles to kill them. You will receive points for each enemy you kill until you die when your "Fuel" reaches zero.

## Key Features:

- Main Character shoots left and right
- The Enemies only spawn from the left and right direction
- The Enemies speed up as the player progress
- Endless timer
- Gain coal from specific enemies, which recharges your fuel







## Design Consideration

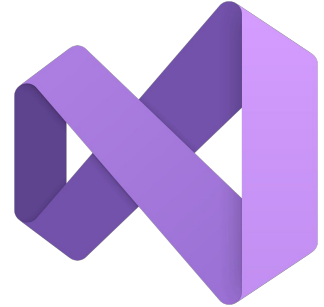
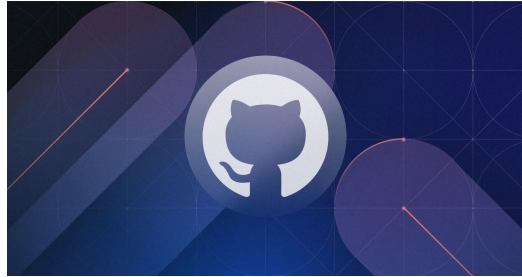
J

After we came up with our idea of the game we discussed what types classes we wanted for the player. We were originally going to make a regular health bar but instead we also made the health bar a fuel bar, that way each time you shoot you would lose health as well.

Since the Player doesn't move, we didn't think would need a map layout.

We decided that when the enemy drops coal you could decided to use whenever you want instead of the fuel bar filling in automatically, which lead to us storing the coal item in a “inventory” until the player decides to use it by pressing space bar.





In terms of equipment that was used one of us brought in a drawing pad which was used to create the main character for the game, the rest of our team brought in our own laptops just in case we couldn't get the computer working. We also created a group chat so that we can inform each other on ideas and updates.

We used **Python** as our main coding language since it's something we are more familiar with.

The software that we used to code our game was **Visual Studio Code** and we chose Pygame as our engine.

**GitHub** was used to effectively store and update any changes that any team member would make.

# Development of the Game (Game Test Variables)

```
92     # Check if the Play Button is clicked
93     if play_button.collidepoint((mouse_x, mouse_y)):
94         if click: # If the Play Button is clicked, run the Main Game function
```

Exception has occurred: UnboundLocalError X

cannot access local variable 'click' where it is not associated with a value

File "\\STU01FS\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 94, in main\_menu

if click: # If the Play Button is clicked, run the Main Game function

AAAAA

File "\\STU01FS\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 231, in <module>

main\_menu()

UnboundLocalError: cannot access local variable 'click' where it is not associated with a value

```
115 # Function for the main menu
116 def main_menu():
117     while True:
118
119         click = False
120
121         for event in pygame.event.get():
122
123             # Quits the game
124             if event.type == pygame.QUIT:
125                 pygame.quit()
126                 sys.exit()
127
128             if event.type == pygame.KEYDOWN:
129                 if event.key == pygame.K_ESCAPE:
130                     pygame.quit()
131                     sys.exit()
132
133             if event.type == pygame.MOUSEBUTTONDOWN:
134                 if event.button == 1:
```

During our first week in development we encountered our first error code, this error code prevented us from starting the game.

The reason for why this occurred was because the click variable was misplaced. The way this was fixed was by relocating the variable

# Development of the Game (Game Test 4 Fireball Spam Crash)

```
479 fireballs_left.remove(fireball_left)

Exception has occurred: ValueError ×
list.remove(x): x not in list

File "\\STU01FS\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 479, in game
    fireballs_left.remove(fireball_left)
File "\\STU01FS\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 146, in main_menu
    game()
File "\\STU01FS\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 533, in <module>
    main_menu()
ValueError: list.remove(x): x not in list
```

Our fourth error happened whenever the player would spam the fireballs to either side, the game would crash and show that the fireball item wasn't in the fireballs list.

```
140 # Check if the Play Button is clicked
141 if play_button.collidepoint((mouse_x, mouse_y)):
142     if click: # If the Play Button is clicked, run the Main Game function#
143         try:
144             game()
145         except Exception:
146             continue
```

This error was fixed by adding error handling whenever the game function would run.

# Development of the Game (Game Test 2 Enemy Collision)

```
452 ice_enemies_left_list.remove(ice_enemy_left)
```

Exception has occurred: ValueError X  
list.remove(x): x not in list

File "\\STU01F5\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 452, in game  
ice\_enemies\_left\_list.remove(ice\_enemy\_left)  
File "\\STU01F5\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 146, in main\_menu  
game()  
File "\\STU01F5\\HOMES\\22329242\\GitHub\\FurnaceManProject\\Main.py", line 515, in <module>  
main\_menu()  
ValueError: list.remove(x): x not in list

Our second error we encountered while developing the game was that when we tried to shoot projectiles at a log enemy sometimes the game would crash and say it's the list containing the ice enemies, this happened because of an **If Statement** checking if an enemy was hit

```
261 ice_spawn_left = False #Variable to check if the enemy has spawned on the left side  
262 ice_spawn_right = False #Variable to check if the enemy has spawned on the right side  
263 log_spawn_left = False  
264 log_spawn_right = False
```

This code was fixed by creating a variable to check if the enemies would spawn on each side for each enemy.

# Development of the Game (Game Test 3 Crash)

```
221 def game_over_func(score, score_amount_text):
222     while True:
223         for event in pygame.event.get():
224             if event.type == pygame.QUIT:
225                 pygame.quit()
226                 sys.exit()
227             if event.type == pygame.KEYDOWN:
228                 if event.key == pygame.K_ESCAPE:
229                     main_menu()
230
231         # Game over screen
232         screen.blit(game_over_background, (0, 0)) # Blits the game over background
233         screen.blit(game_over_text, game_over_text_rect) # Blits the game over text
234         screen.blit(score_text, (430, 370))
235         if score >= 100:
236             screen.blit(score_amount_text, (460, 420))
237         else:
238             screen.blit(score_amount_text, (470, 420))
239             pygame.mixer.music.stop()
240
241         pygame.display.update
```

Our Third error when we were testing our game would crash whenever the player's health would drop to 0 after adding the game over screen to its own function. The reason for it was because we forgot to add the brackets on line 243 where the display would be updated.

This code was fixed just by adding by adding in a forgotten **bracket** in line 243

```
243         pygame.display.update()
```

# Gameplay





## Evaluation

This idea came to us relatively quickly and we stuck with it from the very first day. We ended up making slight changes but the whole game idea has been very similar from the beginning. Across the last 3 weeks we have honed our python and designing skills while also working on our problem solving and team working skills. This experience has helped us get a decent amount of experience and we are very happy with the outcome of our initial idea over the last three weeks. There are a lot of things we could've improved on such as fixing more bugs or polishing the game to make it look more user friendly, and we could've managed our time working on this a bit better, but in the end it still came out better than any of us expected.



# References

Piskel for all character and animations = <https://www.piskelapp.com/>

Visual Studio = [visualstudio.microsoft.com](https://visualstudio.microsoft.com)

Pygame = <https://www.pygame.org>

Game Background = <https://www.gameartguppy.com/shop/space-ship-interior-background-repeatable/>

Menu background =  
[https://www.freepik.com/free-photo/background-made-from-bricks\\_10980125.htm#query=brick%20wall&position=1&from\\_view=keyword&track=ais](https://www.freepik.com/free-photo/background-made-from-bricks_10980125.htm#query=brick%20wall&position=1&from_view=keyword&track=ais)

Music = <https://pixabay.com/music/electronic-let-the-games-begin-21858/>

Fireball sound effect = <https://freesound.org/people/NoahBangs/sounds/636082/>





**Thanks for listening. Any questions?**

