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ICS4U

Ms. Pais

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Introduction:

Purpose:

The main purpose of the project is to create an interactive game which contains multiple stages and storylines that tackles common societal issues. These issues include racism, animal abuse, inequality, social injustice, boredom, etc. The project is to be further co-developed by 4 members. Two members are in charge of developing and programming the game in a method which would propel our main message efficiently and also provide entertainment for the user. One member is incharge of creating the storyline, animating sequences which is to be further embedded into the game, and marketing the game. The final member is to develop a website which acts as the main medium to communicate the game with its audience. The website is to include a download link of the game, explain the message, and constantly provide updates about the game.

Problem:

No human technology can fully replace “nature’s technology”, perfected over hundreds of millions of years in delivering key services to sustain life on Earth. A productive, diverse natural world and a stable climate have been the basic assets at the foundation of the success of our civilization, and will continue to be so in future. A fundamental issue with

previous technological revolutions has been the lightness with which we have taken for granted the natural environment rather than valuing it as a condition necessary to development. Through egotism, humans have become self-centered and the disregard for others is strongly evident. In order to send this message to as many people as possible, our goal is to create a fun playable game, along with a story that will tie in with our beliefs.

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Solution/Proposal:

To fix society and move past the norms that media enforces upon humans, it is best to commence with the youth. In fact, Gregg Pescott argues in his article *Children being Brainwashed,* that the youths of society are relatively the easiest to persuade and provides an in-depth overview of the indoctrination of children through several mediums like the media and even video games. On the contrary, positive values can also be propelled through the same mediums that are supposedly brainwashing children. Video games, which are quite popular amongst children, can be used to promote positive messages and overall improve society for the better.

The game Chicken Slayer Z was decided upon (and inspired by Chicken Invaders). The game is to focus upon the adventures of the main protagonist, who is supposed to represent the youth. After a moment of self-realization, the protagonist sets on a journey to fight the evil members of society who practice negative values like racism, animal abuse, and social injustice. The game hopes to encourage the

disapproval of negative values and overall help children realize what's good and bad, and wrong and right. At the same time, video games also solve other problems like boredom and improve problem-solving skills, enhance memory and coordination.

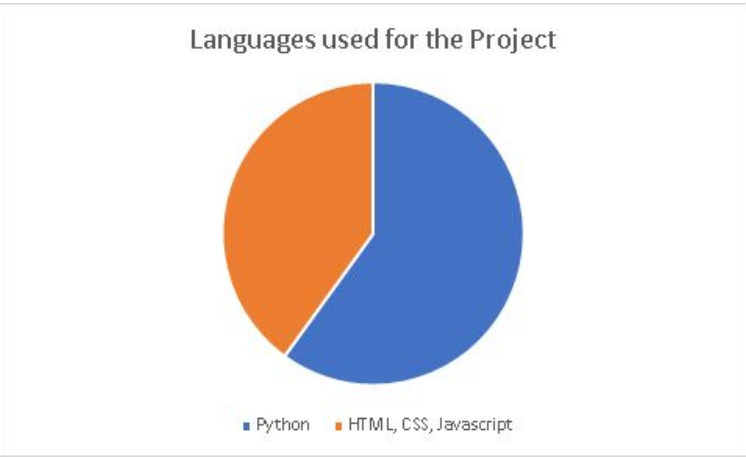
Business Plan:

Chicken Slayer Z is a game that offers enjoyment and promotes healthy sentiments for children. All that for just a one-time registration fee, which is done on the Chicken Slayer Z website. The initial purchase guarantees the overall product, which is the game, and further ensures updates and bug fixes. All profits generated from purchases of the game go towards charities which tackle issues that the game centralises around. The overall mission of the company is to raise awareness rather than gain profits.

Roles:

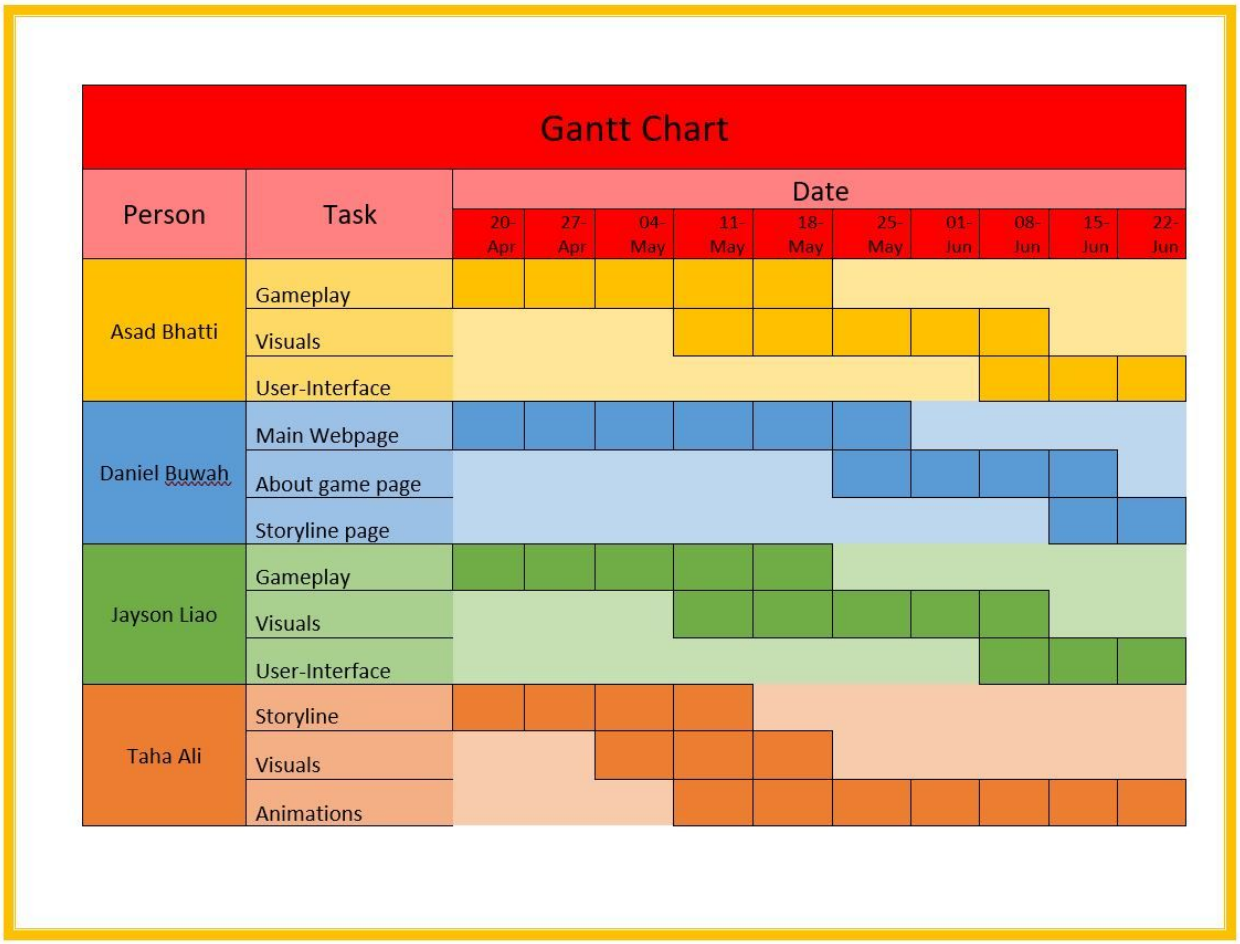
Roles are to be divided amongst the 4 group members based on their comprehension of programming languages. Essentially the game is to be built using python (more specifically the pygame module), while the medium used to communicate the game with its audience is to be built using html, css, and javascript.

Taha Ali, Assad Bhatti, and Jayswan Liao are the main game developers while Daniel Buwaah is the website developer.



Jayson Liao and Asad Bhatti were in charge of developing the main stages, levels, mechanics, and bosses of the game using pygame. Taha Ali was required to also use pygame but to create animations and sequences between the several stages developed by the other developers.

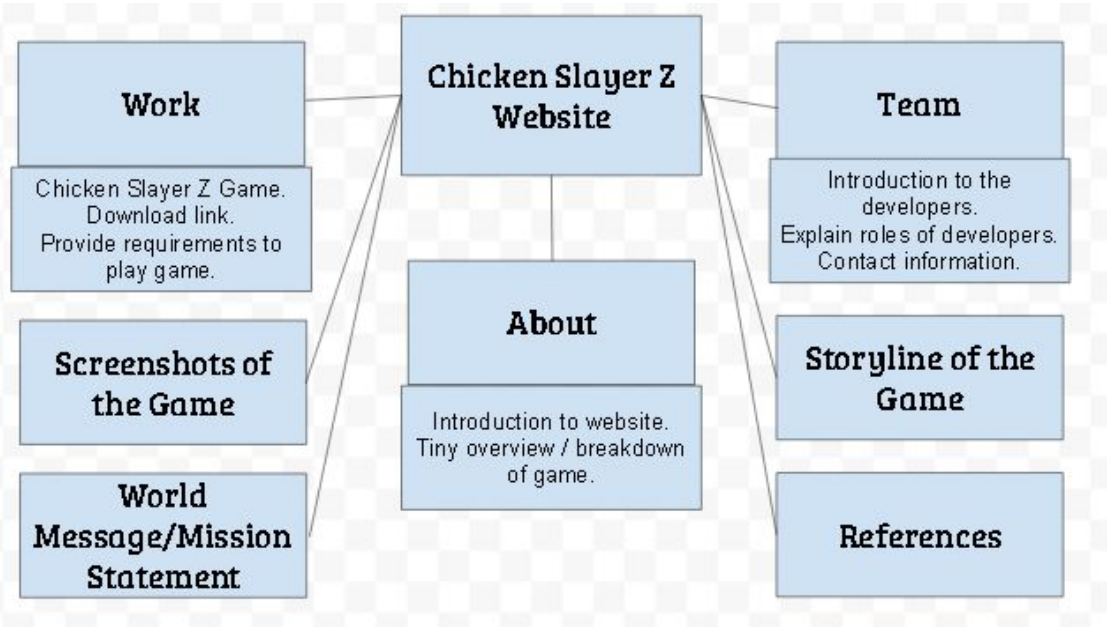
Gantt Chart:



Website Creation:

Brainstorming:

A simple design was communicated amongst the group. Since the website was going to communicate the project, it also had to represent and convey what the game was meant for. Therefore, the colour scheme and layout of the website was strategically decided. The audience of the game was also considered (parents and children). Therefore, a simple and easily navigable layout was concluded.



Development:

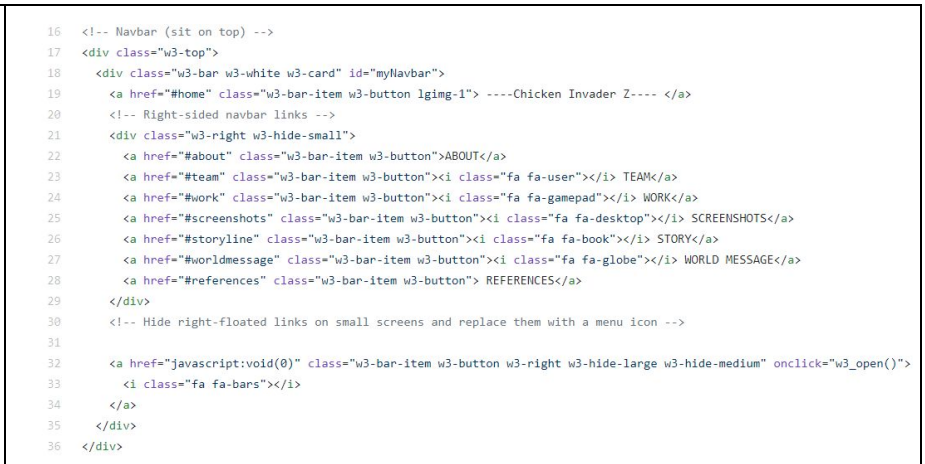
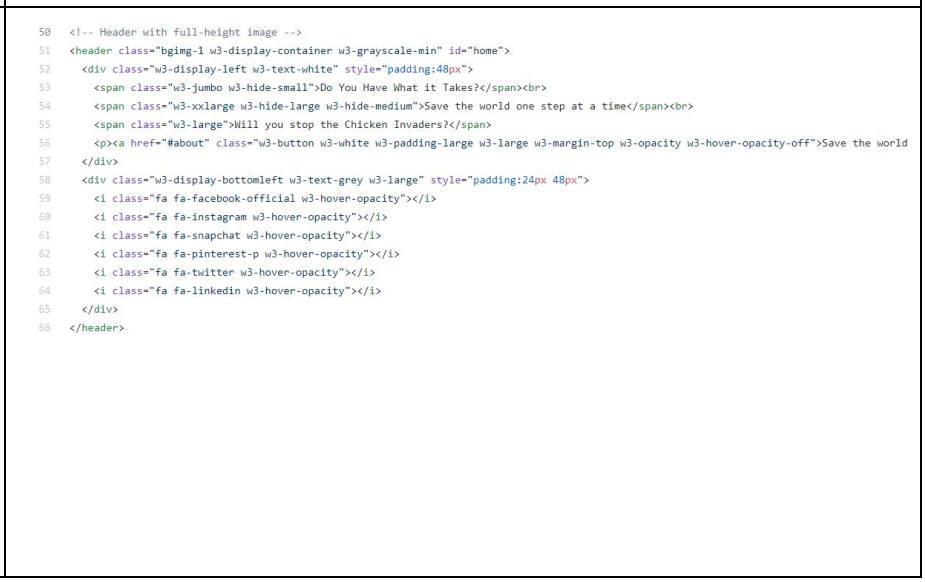
Website development was done using HTML, CSS and Javascript. Through the use of a premade template created by w3 schools, and then images, descriptions were created by the team and additional functions were implemented as well. The process began with one member

well versed in HTML/CSS/Javascript, and the rest not knowing how these languages work at all. By learning the basics of HTML through code academy and going further in depth using w3 schools. Once team members became well versed with the code, improvements and adjustments to the basic template we underway. We began by creating the necessary sections to describe the game (About, Storyline, Game, etc…) and then finished by editing wallpapers, icons and inputting our own descriptions which would be appropriate for the content represented in each corresponding section of the website. This initial process consisted primarily of HTML and CSS. Once the basic template was adjusted to accurately represent the game and the creators an additional section called “screenshots” was created. The basis of the code was also taken from w3 schools (buttons, transitions, text displays) and images of the game were inputted in the HTML code such that the user would be able to view images of the game to get a better sense of what the display was like. This was done through HTML, CSS, and JavaScript. All of the code was edited and created through github.

To view website: https://chicken-sleepers.github.io/Grade-12-Computer-Science-Summative/

HTML Code Explanations:

Description	**Code**
General Create html file, title and call on all required files, formats and links for website	<!DOCTYPE html> <html> <head> <title>Chicken Slayer Z</title> <meta charset="UTF-8"> <meta name="viewport" content="width=device-width, initial-scale=1"> <link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css"> <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Raleway"> <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css"> <link rel="stylesheet" type="text/css" href="Chicken Slayer Z Website/CSS/main.css"> <link rel="stylesheet" type="text/css" href="Chicken Slayer Z Website/CSS/slideshow.css"> <script src="Chicken Slayer Z Website/JAVASCRIPT/slideshow.js"></script> </head> <body>

<u>Navbar</u> User accessibility Created home icon (referenced from CSS file) linked with title of website All major portions of website indicated by icons followed by section name to allow for clarity	
<u>Mobile NavBar</u> User accessibility Similar to previously explained NavBar but created for ease of use on mobile devices	
<u>Website Header</u> General description of website and user hook Created purple retro background to promote game colours and provide a vague hint at the concept of the game Paired with slogans to hook users into the website Additional social contact info links are also visible to user	

<u>About</u>
Website Description
Created to create a general understanding of contents found in website
Website consisting of 4 major sections
Each section takes up ¼ of the page width and give a general description of a website section associated with an overarching picture

```
<!-- About Section -->
<div class="w3-container" style="padding:128px 16px" id="about">
  <h3 class="w3-center">ABOUT THE GAME</h3>
  <p class="w3-center w3-large">Consists of 4 parts</p>
  <div class="w3-row-padding w3-center" style="margin-top:64px">
    <div class="w3-quarter">
      <i class="fa fa-gamepad w3-margin-bottom w3-jumbo w3-center"></i>
      <p class="w3-large">Main Game</p>
      <p>The actual game play interface for the user.</p>
    </div>
    <div class="w3-quarter">
      <i class="fa fa-book w3-margin-bottom w3-jumbo"></i>
      <p class="w3-large">Storyline</p>
      <p>How the story in the main game progresses.</p>
    </div>
    <div class="w3-quarter">
      <i class="fa fa-globe w3-margin-bottom w3-jumbo"></i>
      <p class="w3-large">World Message</p>
      <p>A message about how you can save the world and become a hero!</p>
    </div>
    <div class="w3-quarter">
      <i class="fa fa-list-alt w3-margin-bottom w3-jumbo"></i>
      <p class="w3-large">References</p>
      <p>Where we found the information and resources for our game prototype</p>
    </div>
  </div>
</div>
```

<u>Promotion</u>
Vague Promotion of Team
Purpose to create a general understanding of team capabilities and the team's overarching goal with this project

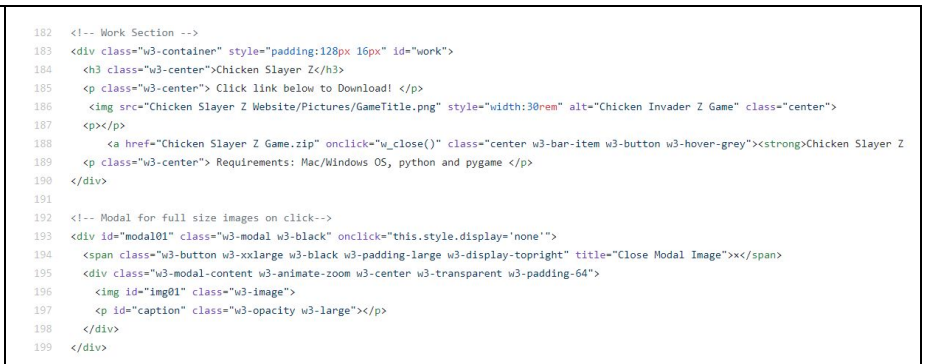
```
<!-- Promo Section - "We know design" -->
<div class="w3-container w3-light-grey" style="padding:128px 16px">
  <div class="w3-row-padding">
    <div class="w3-col m6">
      <h3>We know design, games, and environment.</h3>
      <p>Our team has in depth understanding and knowledge about gaming as well as desgin/marketing. <br> With knowledge, experience and r
      <p><a href="#work" class="w3-button w3-black"><i class="fa fa-th"> </i> Look at Our Game</a></p>
    </div>
    <div class="w3-col m6">
      <img class="w3-image w3-round-large" src="Chicken Slayer Z Website/Pictures/PromoPicture.jpg" alt="Gaming" width="700" height="394">
    </div>
  </div>
</div>
```

<u>Team</u>
Team Promotion Section
Allow users to understand the experience and specializations of each team member. To understand our reliability and put faith in the product through the experience in our corresponding fields. Each team member (total of 4) has an image of themselves, alongside specializations, descriptions and contact info

```
<!-- Team Section -->
<div class="w3-container" style="padding:128px 16px" id="team">
  <h3 class="w3-center">THE TEAM</h3>
  <p class="w3-center w3-large">The ones who run this company</p>
  <div class="w3-row-padding w3-grayscale" style="margin-top:64px">
    <div class="w3-col l3 m6 w3-margin-bottom">
      <div class="w3-card">
        <img src="/w3images/team2.jpg" alt="Asad" style="width:100%">
        <div class="w3-container">
          <h3>Asad Bhatti</h3>
          <p class="w3-opacity">Team Lead & Game Developer</p>
          <p>Understanding of a large variety of gaming generes, styles and experiences. <br> Well versed with coding, art, desgin with sof
          <p><button class="w3-button w3-light-grey w3-block"><i class="fa fa-envelope"></i> 566609@pdsb.net</button></p>
        </div>
      </div>
    </div>
    <div class="w3-col l3 m6 w3-margin-bottom">
      <div class="w3-card">
        <img src="/w3images/team1.jpg" alt="Taha" style="width:100%">
        <div class="w3-container">
          <h3>Taha Ali</h3>
          <p class="w3-opacity">Animator & Marketer</p>
          <p>Background in visual editing, with subtle gaming knowledge. <br> Well versed with marketing through YouTube experience.</p>
          <p><button class="w3-button w3-light-grey w3-block"><i class="fa fa-envelope"></i> 591527@pdsb.net</button></p>
        </div>
      </div>
    </div>
    <div class="w3-col l3 m6 w3-margin-bottom">
      <div class="w3-card">
        <img src="/w3images/team3.jpg" alt="Daniel" style="width:100%">
        <div class="w3-container">
          <h3>Daniel Buwah</h3>
          <p class="w3-opacity">Web Designer & Semi-Pro Gamer</p>
          <p>Semi-Pro Gamer with an abundance of gaming knowledge as well as experience (Top 1000 Worldwide in Fortnite) <br> In depth unde
          <p><button class="w3-button w3-light-grey w3-block"><i class="fa fa-envelope"></i> 597944@pdsb.net</button></p>
        </div>
      </div>
    </div>
    <div class="w3-col l3 m6 w3-margin-bottom">
      <div class="w3-card">
        <img src="/w3images/team4.jpg" alt="Jayson" style="width:100%">
        <div class="w3-container">
          <h3>Jayson Liao</h3>
          <p class="w3-opacity">Editor & Analyst</p>
          <p>An abundance of gaming experience with a varity of in depth knowledge in different gaming generes <br> In depth understanding
          <p><button class="w3-button w3-light-grey w3-block"><i class="fa fa-envelope"></i> 571775@pdsb.net</button></p>
        </div>
      </div>
    </div>
  </div>
</div>
```

<u>Statistics</u>
General Stats about team
A section whose purpose is to “add the cherry on top”
Have the users better understand the degree of knowledge and experience was implemented in order to allow the game to become what it is.
Total of 4 stats, each labelled and associated with a quantitative piece of information

```
<!-- Promo Section "Statistics" -->
<div class="w3-container w3-row w3-center w3-dark-grey w3-padding-64">
  <div class="w3-quarter">
    <span class="w3-xxlarge">100+</span>
    <br>Green Team Community Hours
  </div>
  <div class="w3-quarter">
    <span class="w3-xxlarge">6</span>
    <br>Years of Market Experience
  </div>
  <div class="w3-quarter">
    <span class="w3-xxlarge">23000+</span>
    <br>Hours of Gaming Experience
  </div>
  <div class="w3-quarter">
    <span class="w3-xxlarge">4</span>
    <br>Years of Programing Experience
  </div>
</div>
```

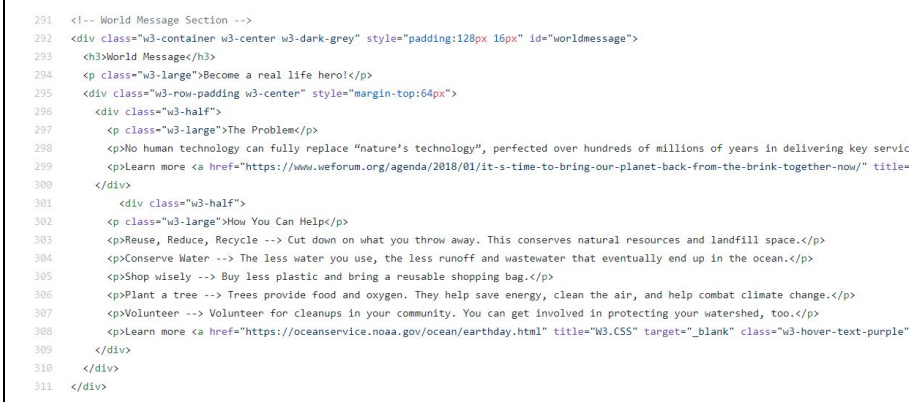
<u>Work (Main Game)</u> Where to find game Users may download a zip file containing the game and can run if requirements to run the game are met Game title followed by download link and requirements are listed in this section	 ``` <!-- Work Section --> <div class="w3-container" style="padding:128px 16px" id="work"> <h3 class="w3-center">Chicken Slayer Z</h3> <p class="w3-center"> Click link below to Download! </p> <img src="Chicken Slayer Z Website/Pictures/GameTitle.png" style="width:30rem" alt="Chicken Invader Z Game" class="center"> <p></p> <a href="Chicken Slayer Z Game.zip" onclick="w_close()" class="center w3-bar-item w3-button w3-hover-grey"><strong>Chicken Slayer Z <p class="w3-center"> Requirements: Mac/Windows OS, python and pygame </p> </div> <!-- Modal for full size images on click--> <div id="modal01" class="w3-modal w3-black" onclick="this.style.display='none'"> × <div class="w3-modal-content w3-animate-zoom w3-center w3-transparent w3-padding-64"> <img id="img01" class="w3-image"> <p id="caption" class="w3-opacity w3-large"></p> </div> </div> ```
<u>Skills</u> Additional information about team skills in relation to game The skills required and the degree of each being implemented towards the game's creation are described and portrayed through a bar scale	``` <!-- Skills Section --> <div class="w3-container w3-light-grey w3-padding-64"> <div class="w3-row-padding"> <div class="w3-col m6"> <h3>Our Skills.</h3> <p>With an abuncance of coding experience and gaming knowledge, our team is well equipped to develop and design a game for many peopl <p>With experience in HTML, CSS, Python, Pygame, and Phtotoshop we are able to make our dreams a reality and as a result produce a hi </div> <div class="w3-col m6"> <p class="w3-wide"><i class="fa fa-gamepad w3-margin-right"></i>Game Design</p> <div class="w3-grey"> <div class="w3-container w3-dark-grey w3-center" style="width:90%">90%</div> </div> <p class="w3-wide"><i class="fa fa-desktop w3-margin-right"></i>Web Design</p> <div class="w3-grey"> <div class="w3-container w3-dark-grey w3-center" style="width:70%">70%</div> </div> <p class="w3-wide"><i class="fa fa-photo w3-margin-right"></i>Photoshop</p> <div class="w3-grey"> <div class="w3-container w3-dark-grey w3-center" style="width:80%">80%</div> </div> </div> </div> </div> ```

<u>Screenshots</u>
Ingame-screen captures
Allows users to get a sense of what the game would look like
Total of 4 images included in slideshow each with their own text display and commands
Based on user interaction a specific picture will be displayed through javascript
If user opts to navigate screenshots via buttons then their function is also controlled through referenced javascript file

```
<!-- Screenshots Section -->
<div class="w3-container w3-center w3-dark-grey" style="padding:128px 16px" id="screenshots">
  <h3>SCREENSHOTS</h3>
  <p class="w3-large">What our game looks like</p>
  <!-- Slideshow container -->
  <div class="slideshow-container">

    <!-- Full-width images with number and caption text -->
    <div class="mySlides fade">
      <div class="numbertext">1 / 4</div>
      <img src="Chicken Slayer Z Website/Pictures/MainMenuSS.JPG" style="width:100%">
      <div class="text">Main Menu Screen</div>
    </div>

    <div class="mySlides fade">
      <div class="numbertext">2 / 4</div>
      <img src="Chicken Slayer Z Website/Pictures/Stage1SS.JPG" style="width:100%">
      <div class="text">Level 1</div>
    </div>

    <div class="mySlides fade">
      <div class="numbertext">3 / 4</div>
      <img src="Chicken Slayer Z Website/Pictures/Stage2SS.JPG" style="width:100%">
      <div class="text">Level 2</div>
    </div>

     <div class="mySlides fade">
      <div class="numbertext">4 / 4</div>
      <img src="Chicken Slayer Z Website/Pictures/Stage3SS.JPG" style="width:100%">
      <div class="text">Level 3</div>
    </div>

    <!-- Next and previous buttons -->
    <a class="prev" onclick="plusSlides(-1)">&#10094;</a>
    <a class="next" onclick="plusSlides(1)">&#10095;</a>
  </div>
  <br>

  <!-- The dots/circles -->
  <div style="text-align:center">
    <span class="dot" onclick="currentSlide(1)"></span>
    <span class="dot" onclick="currentSlide(2)"></span>
    <span class="dot" onclick="currentSlide(3)"></span>
    <span class="dot" onclick="currentSlide(4)"></span>
  </div>
</div>
```

<u>Storyline</u>
Game In-depth storyline
More of an add-on
To create a less business intensive and informative heavy section for users
To promote and express the games creativity in not only the physical gameplay

```
<!-- Storyline Section -->
<div class="w3-container w3-light-grey" style="padding:128px 16px" id="storyline">
  <h3 class="w3-center">STORYLINE</h3>
  <p class="w3-center w3-large">The Chicken Invader Z Storyline</p>
  <div style="margin-top:48px">
    <h4 class="w3-center">The Dawn of the Invaders</h4>
    <p class="w3-center"> They are an intergalactic organization of humans bent on taking over (and later on destroying) Earth Chickens for
    <h4 class="w3-center">A Hero Emerges</h4>
    <pc lass="w3-center"> THe protagonist of the story, Our saviour who has a reputation of eating space burgers with a side of sesame seed
    <h4 class="w3-center">Average ASAD</h4>
    <p class="w3-center"> We know very little about his past, but he must have appeared on an unknown planet, likely in the Foreign Galaxy,
    <h4 class="w3-center">Terrifying TALHA</h4>
    <p class="w3-center"> Now that the Hero stopped their invasion of the Solar System for revenge on humanity, the Chicken Invaders want t
    <h4 class="w3-center">Abominable AHMED</h4>
    <p class="w3-center"> After their second defeat, the Chicken Invaders made yet another plan to destroy humanity. This time they used th
  </div>
</div>
```

but the story behind it. Each section of the game is titled accordingly followed by in depth description for that segment	
<u>World Message</u> OverArching Purpose Although game is meant for fun the premise behind its creation was to implement a deeper message behind it To promote what is right and wrong in users As such for the users aspiring to understand more about how they could help the world this section was created with corresponding info sectioned off by emboldened titles	 ```<!-- World Message Section --> <div class="w3-container w3-center w3-dark-grey" style="padding:128px 16px" id="worldmessage"> <h3>World Message</h3> <p class="w3-large">Become a real life hero!</p> <div class="w3-row-padding w3-center" style="margin-top:64px"> <div class="w3-half"> <p class="w3-large">The Problem</p> <p>No human technology can fully replace “nature’s technology”, perfected over hundreds of millions of years in delivering key servic <p>Learn more <a href="https://www.weforum.org/agenda/2018/01/it-s-time-to-bring-our-planet-back-from-the-brink-together-now/" title= </div> <div class="w3-half"> <p class="w3-large">How You Can Help</p> <p>Reuse, Reduce, Recycle --> Cut down on what you throw away. This conserves natural resources and landfill space.</p> <p>Conserve Water --> The less water you use, the less runoff and wastewater that eventually end up in the ocean.</p> <p>Shop wisely --> Buy less plastic and bring a reusable shopping bag.</p> <p>Plant a tree --> Trees provide food and oxygen. They help save energy, clean the air, and help combat climate change.</p> <p>Volunteer --> Volunteer for cleanups in your community. You can get involved in protecting your watershed, too.</p> <p>Learn more <a href="https://oceanservice.noaa.gov/ocean/earthday.html" title="W3.CSS" target="_blank" class="w3-hover-text-purple" </div> </div> </div>```
<u>Reference</u> References List of all sources and resources used in the creation of the game as well as website	 ```<!-- References Section --> <div class="w3-container w3-light-grey" style="padding:128px 16px" id="references"> <h3 class="w3-center">Game</h3> <p class="w3-center w3-large">https://s3.amazonaws.com/gameartpartnersimagehost/wp-content/uploads/2017/12/Game_Background_110.jpg</p> <p class="w3-center w3-large">https://static3.scirra.net/images/newstore/products/112/splash.png</p> <p class="w3-center w3-large">https://cdna.artstation.com/p/assets/images/images/007/382/336/large/nastya-friday-game-background-4.jpg?15 <p class="w3-center w3-large">http://kodlikes.com/go/aHR0cDovL3d3dy5zY2Fsc3lzLmNvbS8xYmFja2dyb3VuZHMvc3BhY2UtZ2FtZS1iYWNrZ3JvdW5kL3ZpZXct <p class="w3-center w3-large">https://www.mobygames.com/images/shots/l/288376-chicken-invaders-revenge-of-the-yolk-christmas-edition-wind <p class="w3-center w3-large"> <h3 class="w3-center">Website</h3> <p class="w3-center w3-large">https://www.w3schools.com/w3css/default.asp</p> <p class="w3-center w3-large">https://www.weforum.org/agenda/2018/01/it-s-time-to-bring-our-planet-back-from-the-brink-together-now/</p> <p class="w3-center w3-large">https://oceanservice.noaa.gov/ocean/earthday.html</p> <p class="w3-center w3-large">https://wallpaperplay.com/walls/full/1/d/d/101186.jpg</p> <p class="w3-center w3-large">https://stephanie.chezleskrus.com/assets/images/hero-gaming-1.jpg</p> <p class="w3-center w3-large">https://i.ebayimg.com/images/g/m-wAAOSw9GhYdtSu/s-1300.jpg</p> </div>```
<u>Footer</u> Credits to the website template given to w3 schools followed by a button to take user back to top and social media links	 ```<!-- Footer --> <footer class="w3-center w3-black w3-padding-64"> <i class="fa fa-arrow-up w3-margin-right"></i>To the top <div class="w3-xlarge w3-section"> <i class="fa fa-facebook-official w3-hover-opacity"></i> <i class="fa fa-instagram w3-hover-opacity"></i> <i class="fa fa-snapchat w3-hover-opacity"></i> <i class="fa fa-pinterest-p w3-hover-opacity"></i> <i class="fa fa-twitter w3-hover-opacity"></i> <i class="fa fa-linkedin w3-hover-opacity"></i> Powered by w3.css </footer> </body> </html>```

Game Development:

The game development process began with brainstorming and idea communication between the group. Inspirations were drawn from several current and old games that the developers had previously played themselves. For example, Chicken Invaders and Dragon Ball Z were games the developers could relate to and at the same time both games promoted positive messages (protecting the Earth).


The group decided to create a game which would include at least 3 stages and each stage would be introduced after a small animation discussing a message. Each stage would also further include a tiny challenge and finally the final stage would include the hardest challenge. The following storyline was discussed:

Storyline:

Story	Animation associated with storyline
Main character wakes up and self-actualizes. He begins to realize the negative things going on in society.	
He sets off on an exciting journey filled with action and fighting. He vows to defeat the evil doers of society.	

He encounters several challenges but after completing them, he must defeat the final boss to win the game and save the Earth.	

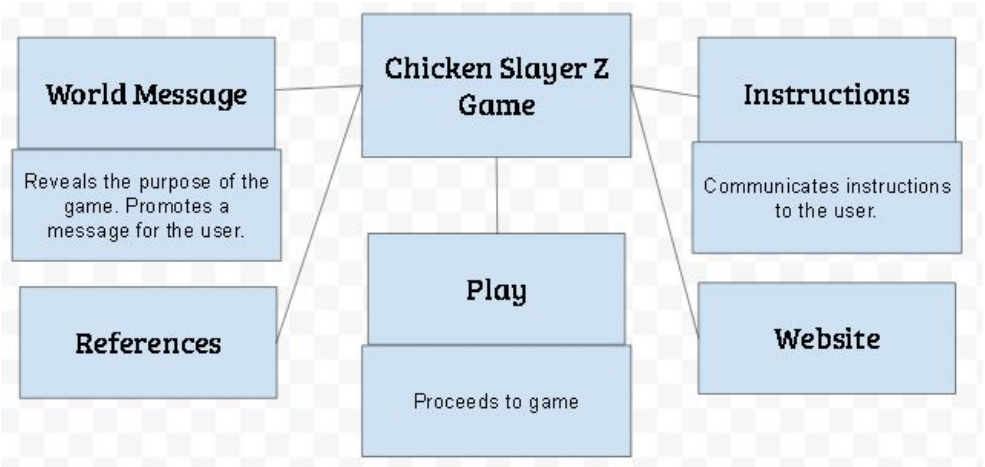
Use of media conventions (symbolism/metaphors):

The main character is dressed in the same outfit as Goku from Dragon Ball Z. In Dragon Ball Z, Goku is the main protagonist and is often the main hero who saves the earth from evil. Similarly by dressing the main character in Chicken Slayer Z like Goku, it is symbolized he is a hero.

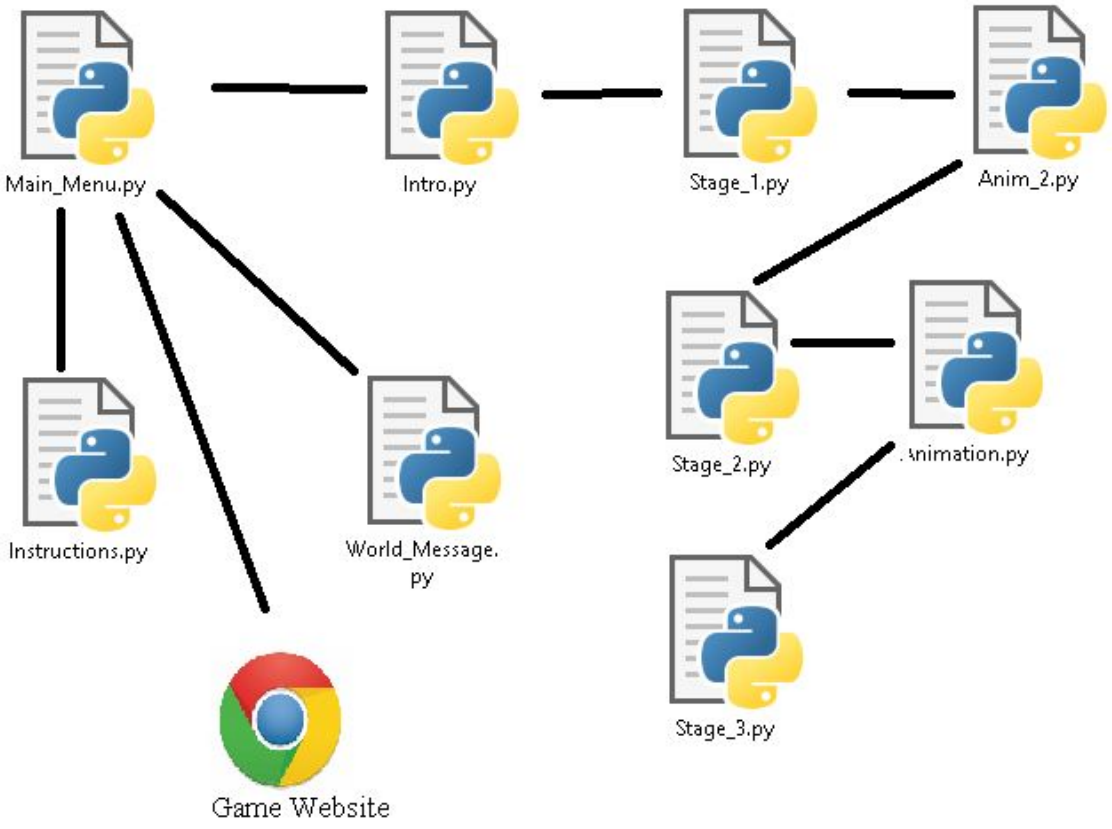
Paradoxically, it is also evident that all of the evil characters the main hero has to fight are disguised as animals. This is quite ironic considering one of the main messages of the game is animal abuse. However, this was decided upon because in today's society those who harm animals are sometimes portrayed in a positive plight. To be specific, farms are often associated with good merit and shown as a safe haven for animals. But that could not be far from the truth as farms are a place where animal abuse is at a high point.

Last but not least, another example of a metaphor used in the game is when the animation leading to the final fight displays McDonalds as a background. This further emphasizes the animal cruelty in the food industry.

Initial brainstormed game layout of main menu:



Code Implementation:



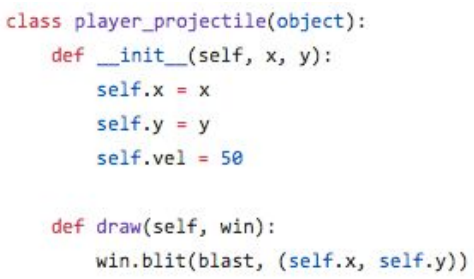
To create our game, we used pygame to “draw” to a display and repeatedly update its surface. The python files have access to and are able to open other files in the game folder, such as png, which are used to render the characters, backgrounds, projectiles and etc.

Gameplay

Code Significance	Code
• A display for the game was created with a length of 1400 pixels and height of 700 pixels. • The colour variables are assigned tuples which will be used for rgb values later on.	`#-----Display-----#` `win = pygame.display.set_mode((1400, 700))` `pygame.display.set_caption("Chicken Slayer Z")` `black = (0,0,0)` `white = (255,255,255)` `red = (255,0,0)` `green = (0,255,0)` `blue = (0,0,255)`
• All images (characters, backgrounds, projectiles, etc.) are loaded	`#-----Images-----#` `stageimage = pygame.image.load("Backgrounds/stagethree.png")` `moveRight = pygame.image.load("Player/taharights3.png")` `moveLeft = pygame.image.load("Player/tahalefts3.png")` `moveUp = pygame.image.load("Player/tahajumps3.png")` `moveDown = pygame.image.load("Player/tahacrouchs3.png")` `standing = pygame.image.load("Player/tahastands3.png")` `blast = pygame.image.load("Player/energyblasts3.png")` `ahmedboss = pygame.image.load("Bosses/Ahmedboss.png")` `eggblast = pygame.image.load("Bosses/eggblast.png")`

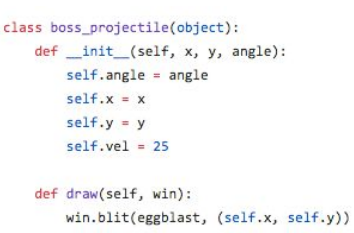
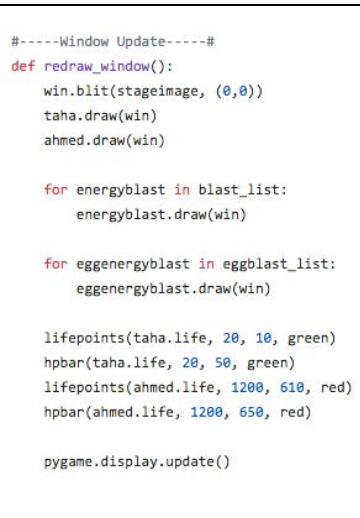
- A class is created for the user controllable character
- __init__ method: the player is given the attributes x, y, vel, left, right, width, height,hitbox and life.
    - The x and y attributes are type integer and will control the coordinates at which the image of the character will appear
    - The vel attribute simply refers to the integer amount the x and y attributes will change by
    - The left and right attributes are booleans that will determine which image will be used to visualize the character (different png for when he is facing right, left, and neither)
    - The width and height attributes refer to the pixel dimensions of the character, which are used for miscellaneous purposes such as creating the hitbox and keeping the character from going off screen.
    - The hitbox attribute stores the dimensions of the player's hitbox using a tuple. It is later used to determine whether or not enemy projectiles are in the same location as the player.

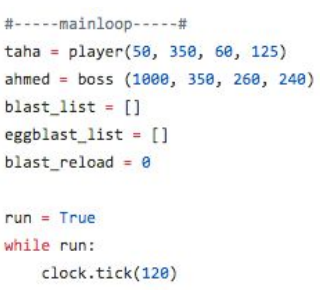
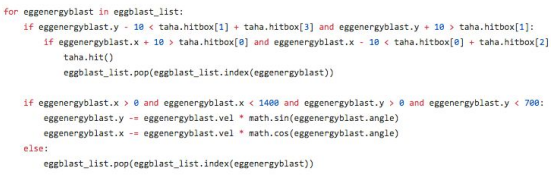
```
#-----Player-----#
class player(object):
    def __init__(self, x, y, width, height):
        self.x = x
        self.y = y
        self.width = width
        self.height= height
        self.vel = 20
        self.left = False
        self.right = False
        self.hitbox = (self.x, self.y, self.width, self.height)
        self.life = 10

    def draw(self, win):
        if self.left:
            win.blit(moveLeft, (self.x, self.y))
        elif self.right:
            win.blit(moveRight, (self.x, self.y))
        else:
            win.blit(standing, (self.x, self.y))

        self.hitbox = (self.x, self.y, self.width, self.height)
        pygame.draw.rect(win, (255, 0, 0), self.hitbox, 2)

    def hit(self):
        self.life -= 1
```

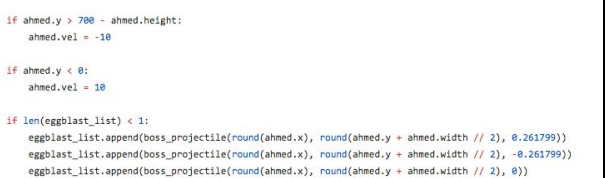
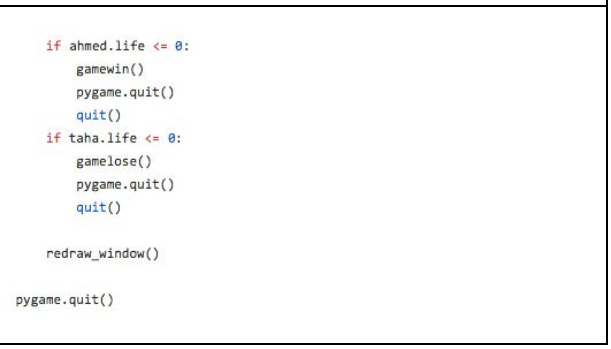
○ The life attribute keeps track of how much hp the player has (integer). ● draw method: Used for updating the image of the player as well as the hitbox. This is used in the redraw_window function. ● hit method: Used to decrease life of player. This is used in the mainloop whenever the player gets hit.	
● A class is created for the player's projectiles. Being able to create objects makes it much easier to have multiple projectiles and do more things with them. ● __init__ method: projectiles are given the attributes x, y, and vel. The x and y attributes are type integer and will determine the projectile's coordinates, while the vel attribute simply refers to the integer amount the x and y attributes will change. ● draw method: Used for updating the image of the projectile. This is used in the redraw_window function.	 class player_projectile(object): def __init__(self, x, y): self.x = x self.y = y self.vel = 50 def draw(self, win): win.blit(blast, (self.x, self.y))

- A class is created for the boss character
- __init__ method: the boss is given the attributes x, y, vel, width, height, hitbox and life.
    - The x and y attributes are type integer and will control the coordinates at which the image of the boss will appear
    - The vel attribute simply refers to the integer amount the x and y attributes will change by
    - The width and height attributes refer to the pixel dimensions of the character, which are used for miscellaneous purposes such as creating the hitbox and keeping the character from going off screen.
    - The hitbox attribute stores the dimensions of the boss' hitbox using a tuple. It is later used to determine whether or not player projectiles are in the same location as the boss.
    - The life attribute keeps track of how much hp the boss has (integer).
- move method: used for updating the position of the boss. This is used in the draw method.
- draw method: Used for updating the image of the player as well as

```
#-----Boss-----#
class boss:
    def __init__(self, x, y, width, height):
        self.x = x
        self.y = y
        self.width = width
        self.height = height
        self.vel = 10
        self.hitbox = (self.x, self.y, self.width, self.height)
        self.life = 50

    def move(self):
        self.y += self.vel

    def draw(self, win):
        self.move()
        win.blit(ahmedboss, (self.x, self.y))

        self.hitbox = (self.x, self.y, self.width, self.height)
        pygame.draw.rect(win, (255, 0, 0), self.hitbox, 2)

    def hit(self):
        self.life -= 1
```

the hitbox. This is used in the redraw_window function. ● hit method: Used to decrease life of player. This is used in the mainloop whenever the boss gets hit.	
● A class is created for the boss' projectiles. ● __init__ method: projectiles are given the attributes x, y, vel and angle. The x and y attributes are type integer and will determine the projectile's coordinates. The vel attribute is used in conjunction with the angle attribute to determine how much the x and y attributes will change. ● draw method: Used for updating the image of the projectile. This is used in the redraw_window function.	 ``` class boss_projectile(object): def __init__(self, x, y, angle): self.angle = angle self.x = x self.y = y self.vel = 25 def draw(self, win): win.blit(eggblast, (self.x, self.y)) ```
● Redraw_window function to update the display at the end of each loop (of the mainloop). ● Blits the background image. ● Calls the draw methods of both the projectiles for the player and boss for each projectile in their respective lists. ● Updates the interface regarding the health of the player and the boss.	 ``` #-----Window Update-----# def redraw_window(): win.blit(stageimage, (0,0)) taha.draw(win) ahmed.draw(win) for energyblast in blast_list: energyblast.draw(win) for eggenergyblast in eggblast_list: eggenergyblast.draw(win) lifepoints(taha.life, 20, 10, green) hpbar(taha.life, 20, 50, green) lifepoints(ahmed.life, 1200, 610, red) hpbar(ahmed.life, 1200, 650, red) pygame.display.update() ```

• Main while loop combines everything to keep the game running. Objects are created beforehand, as well as the lists used to contain the projectiles. Fps set to 120.	
• blast_reload variable used as a timer so that player projectiles aren't spammed and dont stick together. • For loop to determine whether or not the players projectile is in the same location as the boss' hitbox. If so, the projectile will call the boss' hit method and be popped from the player projectile list. ○ Projectile also popped if it goes off the display	
• For loop to determine whether or not the boss' projectile is in the same location as the player's hitbox. If so, the projectile will call the player's hit method and be popped from the boss projectile list. ○ Projectile also popped if it goes off the display ○ Trig functions used for angle	

• If statements used for keystrokes. • Keys “a” and “d” will affect the players x attribute and left/right attributes. • Keys “w” and “s” will affect the players y attribute. • The spacebar key will append a projectile object if there are less than 3 items in the projectile list ○ Only 3 projectiles can be on the display at once to prevent spamming	
• Code used for boss’ movement on display. It goes up and down. • 3 boss projectile objects are added to the list, and the process repeats after all 3 of the projectiles are popped. ○ Angle is in radians	
• Code used to determine when the boss’ life/player’s life is 0 (or less). The if functions will call the gamewin function/gamelost function when True. redraw_window function called at the end of each loop.	

Animations:

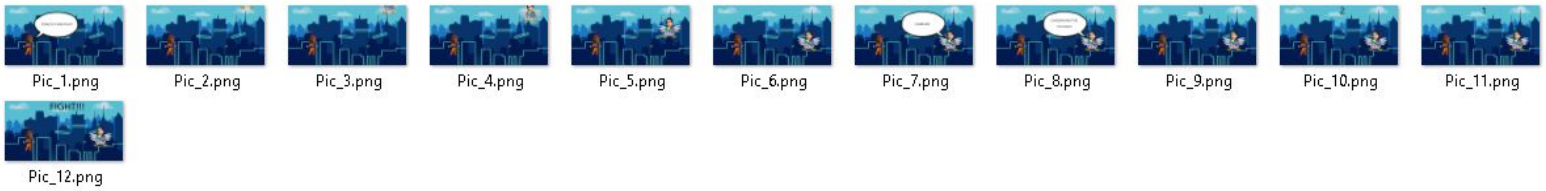
The animations were also created using Python's pygame module. The animations occured between the introduction to each stage. Their main purpose was to create a background storyline to the game.

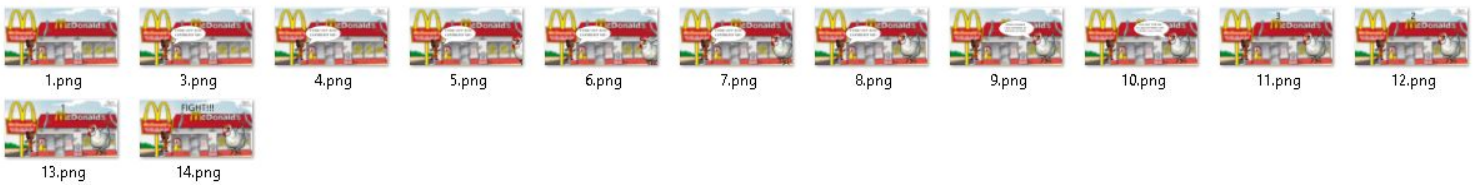
Code Significance	Code
• The following code is from *Intro.py* • The initial count is set at 100 and as pygame updates the frames, a number is added to the initial count. • A png picture is associated with each time frame to give the effect of a moving animation • Once the counter ends upon reaching a specified count, the game moves onto the game stage.	`background = pygame.image.load("Frame_1.png")` `story = 100` `story += 1` `if story == 110:` `  background = pygame.image.load("Frame_2.png")` `elif story == 120:` `  background = pygame.image.load("Frame_3.png")` `elif story == 130:` `  background = pygame.image.load("Frame_4.png")` `elif story == 140:` `  background = pygame.image.load("Frame_5.png")` `elif story == 145:` `  background = pygame.image.load("Frame_6.png")` `elif story == 245:` `  background = pygame.image.load("Frame_7.png")` `elif story == 285:` `  background = pygame.image.load("Frame_8.png")` `elif story == 345:` `  background = pygame.image.load("Frame_9.png")` `elif story == 385:` `  background = pygame.image.load("Frame_10.png")` `elif story == 455:` `  background = pygame.image.load("Frame_11.png")` `elif story == 495:` `  background = pygame.image.load("Frame_12.png")` `elif story == 555:` `  background = pygame.image.load("Frame_13.png")` `elif story == 565:` `  background = pygame.image.load("Frame_14.png")` `elif story == 575:` `  background = pygame.image.load("Frame_15.png")` `elif story == 580:` `  background = pygame.image.load("Frame_16.png")` `elif story == 585:` `  import Stage_1` `screen.blit(background, (0, 0))` `screen.blit(skip, (1100, 600))` `pygame.display.flip()` `elif story == 585:` `  import Stage_1`

• Following code is from *Animation.py* (but also present on all animation files) • If the user presses space, he can skip the animation	 Skipper.png `skip = pygame.image.load("Skipper.png")` `if event.type == KEYDOWN:` `  if event.key == K_SPACE:` `  import Stage_1` `screen.blit(skip, (1100, 600))`

All 3 animations were created using the same framework and base code with only minor changes which were mainly based on timing of frames.

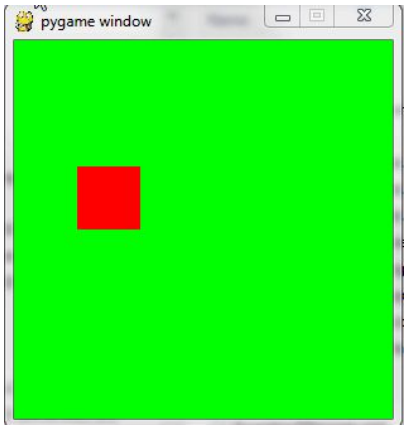
Transition of animation frames:





The following images were created using Adobe Photoshop CS6. Each image was created in a frame by frame manner to create a flipbook or slideshow like effect to animate movement and in essence, create a sense of visualisation for a storyline.

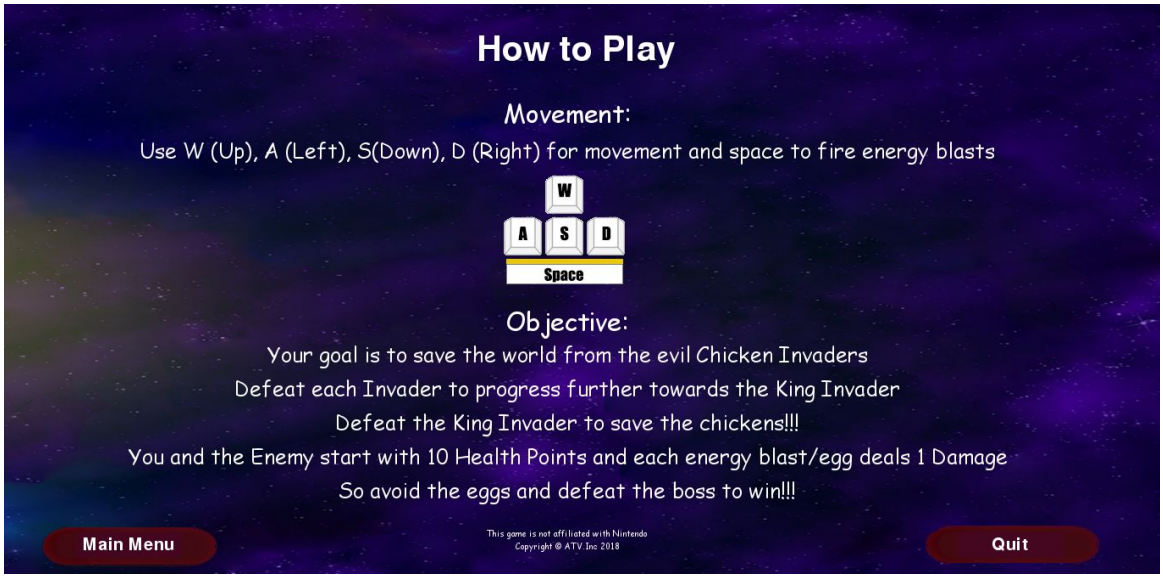
However as opposed to a person flipping through animated pages on a book, pygame constantly updates and displays frame by frame of photoshopped sequences in a swift manner to create a similar effect of movement.



User Interface:

The game commences with the main menu, which was made quite easy to navigate. If the user wishes to visit our website, instructions, world message, etc. one just needs to click on the desired button. To play the game, the user must click on play game.

Controls:



The main controls of the game follow the classic WASD format which move the character up if W is clicked, down if S is clicked, left or right if A or D is clicked. The spacebar is clicked to shoot projectiles at the main villains of the game.

W = Up

A = Left

S = Down

D = Right

Space = Shoot

After entering the game via clicking play, the user is introduced to an intro animation which further leads to stage 1. After completing stage 1, in a similar sense to before the user is introduced to another animation leading into stage 2, and vice versa for stage 3. During the stages the user is faced with bosses who shoot projectiles. The user's objective is to dodge the projectiles using the WASD keys while also simultaneously shoot projectiles using the spacebar at the enemies to defeat them. If the user is hit 10 times and the user's health reaches 0, the user loses and one is greeted with the losing screen.

To complete a level, the user must hit the enemy boss at least 10 times, so it's health reaches 0. If the enemy's health reaches 0, the game proceeds to the next sequence and eventually the next stage of the game. Upon completion of the final level, the game returns to the main

menu.

Customer Feedback After Demo Presentation:

- Rework stage 1 and 2 (add classes for character, boss, and projectiles)
- Create algorithms for more advanced bullet patterns
- Write code for more enemies (new bosses and add minions)
- Add scoring system
- Add co op
- Cover more world issues and relate them to storyline

Images Used:

https://s3.amazonaws.com/gameartpartnersimagehost/wp-content/uploads/2017/12/Game_Background_110.jpg

https://static3.scirra.net/images/newstore/products/112/splash.png

https://cdna.artstation.com/p/assets/images/images/007/382/336/large/nastya-friday-game-background-4.jpg?1505758875

http://kodlikes.com/go/aHR0cDovL3d3dy5zY2Fsc3lzLmNvbS8xYmFja2dyb3VuZHMvc3BhY2UtZ2FtZS1iYWNrZ3JvdW5kL3ZpZXctaW1hZ2UucGhwP2ZpbGU9Li9zcGFjZS1nYW1lLWJhY2tncm91bmRfMjA3MzE0OS5qcGc=

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