

ASSIGNMENT 4

FOR



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Group 12

Tylor Jones

Kai O'Neal

Kiara Burks

Diamonick Dunn

Ahmonya Edwards

Daniel Giangrosso

Overview

I. Title Page

- a. Name of the game
- b. Group members / Contributions
- c. Mission Statement

II. How to Play

- a. Concept/overview
- b. Controls
- c. Command List
- d. Tile Types
- e. Players Turn
- f. Levels

III. Design Tradeoffs

- a. Concept
- b. Implementations

IV. Software Design

- a. Overview
- b. Script Details
- c. Tile Algorithm

V. Credits

- a. Visual Sources
- b. Audio Sources
- c. GitHub Link
- d. Website Link

I. Title/Team

- a. Versatiles
- b. Group members & Contributions:

Tylor Jones	Documentation
Kai O'Neal	Web Development
Kiara Burks	Web Development
Diamonick Dunn	Lead Programmer/Game Designer/Programming
Ahmonya Edwards	Documentation
Daniel Giangrosso	Programming/scripting

- c. Our Mission Statement: Our mission is to acknowledge the games of the past and put our own "spin" to those games. Digital Dice is here to take dicey challenges and make the best out of them.

II. How to Play

a. Overview

Versatiles is a tile matching puzzle RPG where the method of attacking, defending and supporting is by selecting tiles. Versatiles uses a grid of 16 tiles to influence the course of combat. In the game there are seven different types of tiles, each with their own effect on the game. The game has been configured to work with a keyboard or an Xbox One controller so far, the controls have been listed below:

b. Controls

Controls		
Xbox One	Keyboard	Purpose
Analog/D-Pad	W,A,S,D	Move
A	Space	Confirm
B	Back	Exit/Cancel
X	Shift	Switch Target
RT	1	Use Command 1
LT	2	Use Command 2

- c. Command List: The player can use Commands to do a variety of tactics, such as healing, inflicting status ailments onto enemies, boosting stats, etc. a player must also use their CP (command points) to use a Command. Your player can hold two commands at a time which you can acquire by selecting a Command Tile.

Command	Purpose
Heal	Heals 10 HP
Super Heal	Heals 30 HP
Full Heal	Fully heals your HP
HP Regen	Slowly heals 3 HP for 4 turns
CP Regen	Slowly heals 2 CP for 4 turns
Shuffle	Shuffles all tiles in your grid
Spread Attack	Deals 3 damage to all enemies
Piercing Blow	Strong attack that negates the target enemy's defense
Confusion	Confuses the target enemy. Enemy may attack itself.
Get Revenge	When attacked, all attackers receive 1/2 the damage you received
Slap	Flinches the enemy. Can only be used once per enemy.
Touch Damage	When attacked, all attackers receive 1 damage for each hit
Power Up	Boosts your Attack by 2
Defense Up	Boosts your Defense by 2
Cure	Cures all negative status ailments
Lucky Boost	Boosts the chance of landing Lucky hits by 1 stage
Lucky Charm	Fully maxes your chance of landing Lucky hits
Lucky 7 Streak	Deals 7 damage to target enemy 1-7 time(s) per turn. Negates the target enemy's defense.
Instant KO	Instantly KOes the target enemy
Stop	Stops the target enemy in place for 2 turns
Gravity	Deals damage equal to 1/4 of the target enemy's current HP

- d. The gameplay for this game requires some thought to be successful, from the 16 - tile grid (4x4) the player will be able to pick a combination of 4 tiles one by one with 7 tile types available. The tile types are:
- i. Atk: Attack plus
 - ii. MAtk: Multi-Attack Plus
 - iii. HP: Boosts health bar
 - iv. CP: Command Points boost
 - v. C: Command
 - vi. x2: *2 multiplier
 - vii. E: Element Swap
 - viii. G: Guard
- e. Players Turn
- i. During your turn you will select a single tile. All tiles are randomly generated, so choose wisely. When making a sequence of four tiles from left to right the order in which the tiles are selected matters! The combination of tiles is where strategy will come into play because this will affect health, attack power, combat points available, defense, and special abilities. The player will have to strategize their moves in a way that will eliminate all opponents before they reduce your health bar to zero. In order to control the flow of the game there is a 25 second timer (which can be turned off) to add a sense of pressure and challenge to the game. If a four-tile sequence isn't made by the time the timer reaches 0, the remaining selected tiles will be used.
 - ii. The amount of damage received is affected by the enemy's defense and its element (fire, water, wood, light, dark, none). Fire is strong against a Wood enemy but weak against a Water enemy and so on. In order to progress your players attributes permanently the player is required to level up which is done by defeating enemies and completing levels. The player can trace experience

progression with the XP meter located on the game screen. When the player fills their XP meter, they will receive a permanent boost in HP, helping to defeat stronger enemies.

f. Levels

- i. The levels consist of a certain number of enemy waves featuring unique enemy types. When you defeat all the enemies, you move on to the next wave. Each level has a powerful boss as the last wave. After the player finishes their turn, each enemy's counter drops by one, when the counter reaches zero the enemy is given a chance to attack. The goal of each level is to clear all the enemy waves without allowing your HP to reach zero, if your HP reaches zero it's game over.

III. Design Tradeoffs

- a. The basic concept of the game didn't change but additions were made to the design of the game in order to complete the product. The initial plan for the game was to just use your tile sequence to battle your opponent (A.I or multiplayer) but the enemies and level designs were added later on in the project development. These additions were made to add to the challenge and give the player a sense of accomplishment as they progress through the levels in the game. In order to give the game a visually appealing look the game features two stages (Jungle and Casino) each with their own enemies and stage bosses. Each level also has its own unique soundtrack to give the player music to enjoy while playing through the game. The Jungle and Forest levels also have their own unique backgrounds to give a more authentic feel to the game. Overall, most of the design changes in the game came from the desire to add a challenge to the game while also making it as aesthetically pleasing and fun as possible.
- b. We were able to implement all of our core features. Some of the stretch features like the internet level were scrapped because of time constraints and our focus moved to cleaning up the games play and look. Below is a complete list of implemented features as well as those not implemented.

Software Features	Interface Features	Not Implemented
1. Two levels w/ jungle Theme 2. Two levels w/ casino theme 2. Tile algorithm that randomly generates tiles 3. Damage Calculation	1. Splash Screen Animation 2. Title Screen Animation 3. Main menu Selection 4. Tutorial/Instructions 5. Penalty Timer toggle 6. Tile Selection	1. Element- specific commands 2. One extra level for casino world

<ul style="list-style-type: none"> 4. Battle System 5. Enemy Waves 6. Enemy stats, patterns, attacks, health 7. Boss Fight 8. Status ailments 9. Commands 10. Gamepad Support 11. Keyboard support 	<ul style="list-style-type: none"> 7. Game Over Screen 8. Level Cleared Screen 9. Flashy effects 	<ul style="list-style-type: none"> 3. Scrapped boss for aforementioned level 4. Internet World (3 levels) 5. Scrapped enemies for the internet world 6. Scrapped bosses for the internet world 7. Bestiary 8. Level up perks
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IV. Software Design

- a. The game is programmed to where there is functionality for the player and enemies. In the assets folder, as of now we have generated roughly 37 different scripts that handle everything from the buttons to the algorithm for tile distribution. Most of the functionality is in one big script called "Battle Manager". There's also a tile algorithm that randomly generates tiles for you, but it's not completely random. There are certain rules programmed to the algorithm to make sure you don't see a bunch of repeating tiles or tile droughts. Below is a list of a few of the scripts and their main functionality.

- b. There are many different pieces in the game. Here is a detailed description on what each character does and how they work:
 - i. Enemies: Each wave may have up to 6 enemies on screen. At the beginning of each wave, each enemy starts with a preset turn counter. This is to ensure the player doesn't get attacked from multiple enemies from the start. After the player finishes their turn, each enemy's counter drops by 1. When it reaches 0, the enemy is given a turn to attack. Enemies have a list of moves they can use during battle. An enemy that has only 1 move will always use that move. If an enemy has multiple moves, their moves will be chosen randomly (some enemies may use 1 move more often than others). After the enemy makes its move, the counter resets to a fixed value (different for each move). Enemies may have moves that affect your grid or inflict certain status ailments.
 - ii. Bosses: The last wave of each level hosts a boss. There are 5 levels total, so there are 5 bosses. Each boss has a unique gimmick to them.
 1. Snapple: It starts out as an Apple. It only has 1HP. Deal at least 1 point of damage to initiate the actual boss fight. Snapple can bite you or shoot multiple apple seeds at you. It can also do a "juicy bite" which will absorb

the power of your 6 random tiles to regain 6 HP. Selecting those tiles (appear in grayscale) will do nothing.

2. Octavine: will mostly swing its tentacle at you once or twice. Occasionally, it will spray some spores to reduce the value of all your tiles. For example, a HP +5 tile will change to a HP +2 tile. Or a CP +1 tile will change to a CP +0, rendering the tile worthless.
3. Pyroma: will always cast sunlight as its first move. This will increase Fire & Light type attacks by half and decrease Water & Dark type attacks by half. Since Pyroma is Fire type, its attacks will deal significant damage. Note: The sunlight affects just attack power, not defense. If you're Fire or Light, the boss will become easier to deal with. It has zero defense by default. It can spray some spores to burn a random number of your tiles. Selecting those tiles (appear in grayscale) will do nothing.
4. Eighter: has 120 HP, 8 ATK, and 8 DEF. Eight Has The Highest defense in the game. Powerful single strikes are the key to breaking its defenses. There are 4 phases to the fight which requires either dealing a certain amount of damage or dealing a certain number of hits.
5. Pokerface: has the highest amount of HP in the game. He attacks every turn by playing a random card from his deck of 14 cards. Once a card is played, it removes the card from the deck. When the deck is empty, it will refill in the backend.
Deck: {Zero, Ace, Two, Three, Four, Five, Six, Zero, Ace, Two, Three, Four, Five, Six} After at least 3 turns, it will receive 1 of 4 promotions:
 - Powerful promotion: Inflicts an Attack Up status ailment on itself to increase attack power by 2 for 3 turns.
 - Defensive promotion: Inflicts a Defense Up status ailment on itself to increase defense by 2 for 3 turns.
 - Vengeful promotion: Inflicts a Revenge status ailment on itself for 3 turns. When the player attacks Poker Face, the player will receive half the damage dealt to Pokerface.
 - Lovely promotion: Inflicts a HP Regen status ailment on itself to heal some HP for 3 turns

iii. Phases:

1. The 1st phase has 8 DEF. Deal at least 1 point of damage. It attacks the player every 3 turns.
2. The 2nd phase has 4 DEF. Deal at least 10 points of damage or 30 hits.
3. The 3rd phase has 2 DEF. Deal at least 12 points of damage or 24 hits. Also, it starts to attack the player every 2 turns instead of 3.
4. The last phase has 1 DEF. Deal at least 15 points of damage or 24 hits.

5. Once you beat the last phase, Eighter will break and collapse to the ground. In this state, Eighter will no longer attack you, and its defense goes to 0 for the whole battle. It's not required to complete all phases, but doing them makes the boss fight easier.
- c. Tile Algorithm
- i. Total number of tiles in the algorithm: 64
 - ii. Each grid contains 11 Attack Plus tiles and 5 other tiles. The program keeps track of what leftover tiles need to be included in the grid. This is to make sure the program doesn't crash or get in an infinite loop.
 - iii. The algorithm creates four 16x16 grids and stores them in a grid sequence (in the code, it's a list). When it's the player's turn, it spawns a 4x4 grid on screen and removes it from the sequence. Once the sequence is empty, it recreates a new set.
 - iv. If 6 or more of the same type of a specific tile is presented in the setup list, that determines whether an Attack +1, +2, +3 or +4 tile is up next.
 - v. If 2 or more of the same type of a specific tile is presented in the setup list, that determines whether an Multi-Attack +1, +2, HP +5, or CP+1 tile is up next
 - vi. If there are more than 1 of a specific tile then that determines whether a Command, x2, or Element Swap tile is up next

V. Credits

- a. Visual Credits
- i. All the visuals were originally created from the ground up in Adobe Photoshop and Illustrator. We wanted to create a futuristic, colorful user interface. The enemies were designed to look simple and charming.
- b. Audio Credits
- i. Below is a complete list of the audio resources used for the game. When you enter a level or face against a boss, the music fades in. Each level has a unique theme as well as each boss. Most of the music was edited in Audacity.
1. Kirby Battle Royale
 - o Name: Apple Harvest
 - o Composer(s): Megumi Ohara; Shogo Sakai
 - o Developer(s): HAL Laboratory
 - o Publisher: Nintendo
 - o Source: <https://www.youtube.com/watch?v=YtcC4QyMzJk>
 2. Sonic Lost World
 - o Name: Silent Forest (Zone 1)
 - o Composer(s): Tomoya Ohtani, Takahito Eguchi
 - o Developer(s): Sonic Team
 - o Publisher: SEGA

- Source: https://www.youtube.com/watch?v=jji_9ydgcl1s&t=137s
3. Donkey Kong Country Returns
 - Name: Savory Stu
 - Composer(s): Minako Hamano, Masaru Tajima, Shinji Ushiroda, Daisuke Matsuoka, Kenji Yamamoto
 - Developer(s): Retro Studios
 - Publisher: Nintendo
 - Source: <https://www.youtube.com/watch?v=MRBIDvDOMzg>
 4. Kirby Star Alien
 - Name: Planet Earthfall
 - Composer(s): Hirokazu Ando, Jun Ishikawa, Yuuta Ogasawara
 - Developer(s): HAL Laboratory
 - Publisher: Nintendo
 - Source: <https://www.youtube.com/watch?v=wUuvwY8wr68>
 5. Wario Land: Shake It!
 - Name: Riverbloat Rapids
 - Composer(s): Tomoya Tomita, Minako Hamano
 - Developer(s): Good-Feel
 - Publisher: Nintendo
 - Source: <https://www.youtube.com/watch?v=F0uCQUfikYA>
 6. F-Zero GX
 - Name: Shotgun Kiss (Casino Palace)
 - Composer(s): Hidenori Shoji, Daiki Kasho
 - Developer(s): Amusement Vision
 - Publisher: Nintendo
 - Source: <https://www.youtube.com/watch?v=a-SvxevJrso&t=82s>
 8. Final
 - Name: Brass de Chocobo
 - Composer(s): Nobuo Uematsu, Masashi Hamauzu, Junya Nakano
 - Developer(s): Square Electronic Arts
 - Publisher: Square Product Development Division 1
 - Source: https://www.youtube.com/watch?v=p-q_1oOFIEk
 9. Super Mario Odyssey
 - Name: Mechawiggler Battle
 - Composer(s): Yoshiaki Koizumi, Koichi Hayashida
 - Developer(s): Nintendo EPD
 - Publisher: Nintendo
 - Source: <https://www.youtube.com/watch?v=hEu38E3E7Sw>
 10. The Sounds Resource: <https://www.sounds-resource.com/>
 11. 101soundboards: <https://www.101soundboards.com/boards/11198-earthbound-sounds>

c. Github Link

i. Here is the link to the Github for a complete look at the code & assets to the game

1. <https://github.com/diamonick/VersaTiles>

d. Website Link

i. Here is a link to the company website. Here you can also find directions on how to download and play the game

1. <https://digital-dice-f5d25.firebaseio.com/>

