**RPG Framework**

For the 3rd Tech Demo you are to implement the first bits of an RPG framework that can be used for combat systems in target-based MMORPGs. It also should be developed on mobile and should include bare minimum content. You may use any asset pack on top of using the already provided assets. There’s no requirement for level design but you may use tilemaps to help you showcase your mad skills.

**Requirement 1: Movement & Animation**

1. You can move your character using a single Virtual Thumbstick.
2. The camera is top-down and set to follow your character at all times.
3. Your character must face the direction they are moving towards.
4. If the character has a target, they need to face that target instead.

**Requirement 2: Targeting**

1. By tapping on an enemy, you are able to target them.
2. By targeting them, you are able to start casting your spells against them as well as use your normal attacks.
3. While you have a target, you are able to see information about them (See Requirement 8)
4. If you tap anywhere on the ground, you are able to de-select your target.

**Requirement 3: Normal Attacks**

1. You should be able to toggle your auto-attack (normal attack) on or off using the button in the bottom-right corner of the screen.
2. If your enemy is within range, you should start auto-attacking with your staff.
3. If your enemy is out of range the auto-attack button should become red to indicate that.
4. The auto-attack and special attack HUD elements should only appear when you have a target.
5. If you lose a target, auto-attack automatically gets toggled off.
6. When an attacking animation ends, apply damage.

**Requirement 4: Damage Systems**

1. When dealing OR taking damage, floating numbers should spawn over the character’s heads.
2. HUD should be updated to reflect new health.
3. Damage Formula: [BaseDmg \* 0.75, BaseDmg\*1.25] \* DefenseMultiplier (Victim).
4. All attacks have 80% Hit Chance and 20% Miss Chance. On Miss, nothing happens.
5. On Hit, there is an additional 20% chance for a critical hit. Critical hits are double damage.

**Requirement 5: Death Systems**

On Character death:

1. 3 sec after death animation has been played, respawn at starting point & Fully heal yourself.
2. Reset aggro from enemies & fully heal them. Enemies are to return to their original position.

On enemy death:

1. Play their death animation and freeze it at the last frame.

**Requirement 6: Aggro Systems**

1. When moving close to enemies, they are targeting us and are able to chase and attack us. That’s known as “getting their aggro”.
2. Each enemy has their own aggro range.
3. We can aggro multiple enemies.
4. Aggro can only be reset if either the player character OR the monster dies.

**Requirement 7: Buff System**

Limited-time powerups are known as buffs, while effects of opposite impact might also happen known as debuffs. Tip: Unless mentioned otherwise, all buffs are unstackable.

1. Every single debuff OR buff can be applied to our character or enemy characters.
2. Our character may have any number of Buffs or Debuffs activated on them at any time.
3. Every buff or debuff has a lifetime. As long as they “live”, their effects are applied.
4. Every buff or debuff can be shown for either enemies under their target panel OR ourselves (top right of screen) including durations. (See Req 8).
5. Some buffs may be stackable (ie can be appended more than 1 time as more powerful versions of the same buff)

**Requirement 8: HUD Design**

Starting from top-left:

* Player HUD (Includes Portrait, HP, MP)
* Target HUD (Includes Enemy Portrait, their HP and MP as well as their buffs and debuffs)

Top-right:

* Our own buffs and debuffs. Their durations are shown underneath them.

Middle part:

* A casting bar that should either fill up or decrease over time based on the special attacks and casted abilities we are using.

Bottom-left:

* Virtual thumbstick control for movement.

Bottom:

* Abilities panel. By swiping we can change the ability set. If we are too far away OR we don’t have enough mana, an ability should be red. If it’s in cooldown, it should be shown as numbers.

Bottom-right:

* Attacking button (toggleable) – See req 3

Reference Wireframe:



**Requirement 9: Abilities & Character Stats**

|  |  |
| --- | --- |
| **Frappi the Gnome Mage**  Health: 500  Mana: 960  Melee Attack Speed (Staff): 2 sec  Base Damage: 18  Defense Multiplier: 0.9  Mana Regen: 12 Mana / sec. |  |

**Abilities**

|  |  |
| --- | --- |
| A bright light in the dark  Description automatically generated | **Fireball**  Mana Cost: 120  Casting Time: 3 sec  Base Power: 35 Dmg  Effect:  Hurls a ball of fire at the enemy which on top of its’ initial damage applies a **damage over time effect (Debuff)**, burning the enemy for additional damage over 15 sec.  The additional damage is 4 damage every 3 seconds. If the fireball crits, then the additional damage is doubled. |
| A blue light in the sky  Description automatically generated | **Frost Lance**  Mana Cost: 45  Casting Time: Instant, but has 0.5 sec cooldown  Base Power: 10 Dmg  Effect:  Hurls a frost lance at the enemy which applies a **slowing effect (Debuff)** that can stack up to 5 times, adding a 15% slow effect on every stack.  On the 5th cast, the damage is tripled (30). Then, all stacks are lost. The stacking effect can last up to 5 seconds and is refreshed on every cast until the 5th one. |
| A bright light in the dark  Description automatically generated | **Arcane Missiles**  Mana Cost: 150  Casting Time: 5 Sec Channeling (Effect happens every “tick” while castbar is actually emptying itself)  Base Power: 15 Dmg / Missile  Effect:  Hurls an arcane missile towards the enemy every 1 second while the channeling effect persists. It can be cancelled only when the player moves. If any of those missiles is a critical hit, then the mage enters a **moment of brilliance (Buff)**, allowing them to cast any spell for the next 10 seconds with no mana cost. The buff is lost upon the first free cast. |
| A blue and white logo  Description automatically generated | **Mage Armor**  Mana Cost: 200  Casting Time: Instant, but 120 sec cooldown  Effect:  Applies an **armor buff** that sets your Defense multiplier to 0.65 and mana regen to 25 mp/s for 30 sec. |

*PS: For all mage abilities, you need to use VFX to indicate projectiles as well as casting particles on Frappi’s hands!*

**Requirement 10: Enemy**To test combat mechanics you are to Implement the following enemy including their animations and aggro. If you run out of time, you can still test some of your stuff without implementing their abilities.

|  |  |
| --- | --- |
| **Mutated Serpent**  Health: 250  Ranged Attack Speed (Poison Projectiles): 3 sec  Base Damage: 25  Defense Multiplier: 0.8  The serpent has no mana  Special Abilities:   * Every 3 attacks, the serpent will cast **Toxic Split**. * Every attack has 50% chance of applying an additional 10 poison damage. * Under 20% health, the serpent will enrage, doubling it’s damage output. Show the enrage using a red-ish tint.   Toxic Split   * 2.5 sec casting time. * Applies “Toxic” debuff to character.   Toxic Debuff:   * 20 sec lifetime * Doubles received posion damage. |  |

**Grading Details**

|  |  |
| --- | --- |
| **Feature** | **Weight** |
| Mobile Build | **5** |
| Movement & Animation | **5** |
| Targeting System | **5** |
| Normal Attack (Melee) | **10** |
| Damage System | **5** |
| Death System | **5** |
| Aggro System | **5** |
| Buff System | **20** |
| HUD | **10** |
| Abilities | **20** |
| Enemy | **10** |

* This means you can still pass the assignment with a high B without touching any ability or enemy.
* This also means you are able to get a D or higher just by implementing the game on mobile, working on a few systems and focusing on the hud!