

## Assignment Brief: Turn-Based RPG System

### Overview:

In most turn-based RPG's, the player controls a party of characters with various abilities and fights enemies. The core parts of this system are the abilities characters can have (for example, a magic blast that does fire typed damage, or a healing ability that can undo damage), as well as their individual stats and what they have equipped, and a combat system that ties it all together. Characters can also level up as they gain experience, and can learn more abilities on top of their base ones. Battles are usually controlled through a menu system where the player selects the name of the character they want to target and then once all moves are queued up the game goes through them all in an order based on a stat (usually speed).

The purpose of this system will be to create the framework for the abilities that a user can add to a character, as well as a class system that lets them group abilities together so that as a character levels it can just gain the next one in a pre-done list. With abilities, the user will be able to specify a damage type as well as and effects the move has on the targets, for example they could type a move as magic that does 50 fire damage. You should also be able to specify how many turns this effect lasts for should they want things like poison damage or a stat buff, as well as an animation or effect that goes with the move.

An inventory/item system would also be available, so that the user can create items that the characters can wear to change their base stats/weapons. This could involve the user being able to change up the characters model by having the option of adding in a model to the item so that the equipment is visible during play.

Lastly there would be a menu system that the user can customise character portraits/move icons on, as well as screen placement and the overall look of, that will be visible when the characters are in a fight.

### Implementation:

Other than any inbuilt Unity libraries I don't think that this system will require any other third-party libraries, and it will be released as a redistributable static library.

There will be a character class that holds all the stats a character has, as well as a reference to what abilities they can use. Some basic stats would be:

1. Speed (determines move order)
2. Strength (physical attack)
3. Vitality (physical defence)
4. Intelligence (magic attack)
5. Mind (magic defence)
6. HP
7. MP
8. Dexterity (Aim accuracy)
9. Agility (evade chance)

Some basic abilities would be a physical hit, or an untyped magic hit. The abilities would be scriptable objects derived from a base class so that the user can easily create more.

The battle menus will be made using the unity UI system and will allow the user to customise its look by changing its skin in the inspector, and will allow them to create buttons that activate certain abilities on their characters. While the menu system is onscreen the characters won't attack, and once everything is selected and the round is set up to start the moves will be done in order of speed (higher speed characters move first). This menu system could be expanded upon so that it could be further customizable, but that would be a stretch goal.

The item system will be set up much like the abilities, but with a check on whether they're equipable or consumable. Some basic tags the player could give items are:

1. Consumable
2. Head
3. Torso
4. Legs
5. Hand

This would allow the character to track if it is already wearing a head item and will swap it out for a new one instead of wearing two at the same time if another is equipped.

The inventory system will be a basic list of all the items the player has, as in turn-based RPG's all characters share an inventory. It could be sorted by item type, or possibly just newest first.

Using Unities gizmos, the player should be able to set an icon for each of the powers, as well as any items created. If none is set it would be set to a default generic icon.

The battle system would activate anytime the player enters combat, and keeps track of what is being done each round as well as in what order it is occurring. It will also have the ability to track how many turns the player can do at once, in case the user creates an ability that can increase their turn count.

### Testable Goals:

1. Set up 2 capsules with the same basic damage ability, deal damage to each one with button clicks.
2. Set up 2 capsules with low hp and give them heal abilities, use ability with button click.
3. Apply a damage buff to 1 capsule and see the other capsule take more damage.
4. Apply a shield to a capsule and watch as it takes less damage.
5. Create basic item (no model, just affects stats), and equip it to a capsule to test if the stats add up.
6. Set up the menu system with various abilities and test that when a button is clicked, the character does the specified attack.
7. Set up the turn system so that no moves are done until both capsules have selected a move for that turn.
8. Create simple AI for enemy types that selects the best available move to do each time it's prompted, test by setting up a scene with 2 capsules (1 player controlled, one AI) and seeing if the AI selects a move.