|  |
| --- |
| Feature Documentation |
|  |

Date: 31-01-23

LiquidX UE Game Programmer Test

Test 1: Please explain what is wrong with this code. (5-10mins)

TArray < AActor \* > MyActors;

void PopulateArray(int n) {

for (int i = 0; i < n; ++i) {

AActor \* ActorToAdd = GetWorld() ->SpawnActor<AActor>();

MyActors.Add(ActorToAdd);

}

}

void PrintArray(TArray < AActor \* > Array) {

for (auto Actor: Array) {

UE\_LOG(LogTemp, Warning, TEXT("Actor's name is: %s"), \*Actor-> GetName());

}

}

void BeginPlay() {

PopulateArray(100000);

PrintArray(MyActors);

}

Notes:

1. I think it can be done in one for loop instead of two and use pre allocation for the array to avoid reallocations when array items are added.

TArray<AActor\*> MyActors;

void PopulateArray(int n)

{

MyActors.Reserve(n); // Preallocate memory for n actors

for(int i = 0; i < n; ++i)

{

AActor\* ActorToAdd = GetWorld()->SpawnActor<AActor>();

MyActors.Add(ActorToAdd);

// if the names are required for further use

UE\_LOG(LogTemp, Warning, TEXT("Actor's name is: %s"), \*ArrayToAdd->GetName());

}

}

void BeginPlay()

{

PopulateArray(100000);

// in case we just need the number of actors

//UE\_LOG(LogTemp, Warning, TEXT("Number of actors: %d"), MyActors.Num());

}

1. There could still be a problem with garbage collection.

Test 2: Implement gameplay features (4 hours max)

**Prepare your work environment.**

1. A jetpack.
   * Used the simple flying by using the CharacterMovmentComponent setting and changed the move code in the AGamePlayTestCharacter to simulate flying.
   * Improvements:
     1. Need Animations
     2. Need to be activated when a JetPack Pick up actor is in the player’s Inventory
     3. Audio and particle effects
   * Class Name: AGamePlayTestCharacter
   * Input: IA\_Fly
   * Time: 30 Minutes

2. Simple world interaction mechanics

a. Opening doors

b. Triggering switches or buttons

c. Speaking with an NPC

* Created a C++ Interface to handle various types of interaction (a to c)
* Class Name: IIInteractWithObjects
* Input: IA\_Interact
* Improvements:
  + Speaking with NPC would be better with a dialogue system tool
* Problems:
  + Had trouble implementing blueprint functions like DoesImplementInterface. Therefore, Interaction is implemented in Blueprints.
  + Also, the box collision for the Door is disappearing sometimes in the StaticMesh editor so added an extra collision box.
* Time: 1 hour

3. Picking up and throwing the cubes

* Implemented Using PhysicsHandle Component
* Improvements: to fix the jittering caused when the cubes are moved around
* Input: IA\_GrabAndThrow
* Class Name: AGamePlayTestCharacter
* Time: 30 minutes

4. Punching and damaging the cubes

5. Double jumps

* Implemented by changing the JumpMaxCount variable defined in the UE’s character class.
* Class Name: AGamePlayTestCharacter
* Time: 1 minutes