

# Voodoo

## Casual Game Developer

### Technical Test

Duration: *3 days*

Voodoo is a **mobile game** company based in France with studios in Barcelona, Amsterdam and Berlin. We design, develop and distribute worldwide fun games for everyone such as Paper.io 2, Hole.io, Ball Mayhem, Helix Jump and many more (+1 billion users).

We target the **mass market** so, both women and men, of any age, all around the world, called “**casual gamers**”. Imagine both a fourteen-year old boy and a fifty-year old mother as your average gamers.

We are looking next to **create new experiences for our audience beyond the hypercasual** market (i.e. Archero) and this is where you come in!



## TEST ASSIGNMENT:

### Definition

We would like you to implement a units based architecture, that will be the base of a fight simulator game like *Army Clash* available on the store.

We expect your project to generate 2 armies of random units based on their shape, size, color, and assign the right characteristics. After the random generation, the 2 armies should fight with some visual feedbacks.

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# 1st part

### Requirements

Units must have 4 characteristics composed of **ATK** (Attack Points), **HP** (Health Points), **SPEED** (Movement Speed) and **ATKSPD** (Attack Speed).

The color and the size will impact on those characteristics.

Units will have different **SPEED** and **ATKSPD** depending on their **ATK** and **HP** statistics.

There will be 2 type of units that can be either **SMALL** or **BIG**:

- CUBE
- SPHERE

It will be possible to associate one of those colors:

- BLUE
- YELLOW
- GREEN
- RED

## Basic Unit Characteristics

100 HP	10 ATK
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## Shapes Characteristics

CUBE	SPHERE
Add 100 HP	Add 50 HP
Add 10 ATK	Add 20 ATK

## Sizes Characteristics

BIG	SMALL
Add 50 HP	Remove 50 HP

## Colors Characteristics

Colors will affect characteristics based on shapes.

	BLUE	YELLOW	GREEN	RED
CUBE	Add 10 ATK	Add 100 HP	Add 30 ATK	Add 200 HP
SPHERE	Add 50 HP	Add 20 ATK	Add 150 HP	Add 40 ATK

*Please note that your project should support future addition of new colors & shapes.  
It should be as convenient as possible.*

## Movement Speed

**HP** value will impact the movement speed.

The value will be interpolated between the minimum and the maximum HP values.

The value of speed is in **units per seconds**. (Reminder: A basic cube of scale 1 is 1 unit)

MINIMUM
HP : 150
Movement Speed : 10



MAXIMUM
HP : 450
Movement Speed : 5

## Attack Speed

**ATK** value will impact the attack speed.

The value will be interpolated between the minimum and the maximum ATK values.

MINIMUM
ATK : 30
Attack Speed: 1 seconds



MAXIMUM
ATK : 70
Attack Speed: 2 seconds

# 2nd part

## Requirements

We would like you to implement a battle simulation between 2 armies.  
Each army will be composed of 20 units which will be in front of each other.  
We should be able to randomize armies and start a fight simulation.

Rules of fight:

- You can make unit's targeting system as you like (i.e. attack the closest unit...)
  - Every X seconds (determined by the Unit's **ATKSPD**), the unit will deals damage equals to their **ATK**, to its current target.
  - Units dies when their HP reach 0
  - When either of the army is killed, the other one wins, and it should get the player back to the home screen.
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**Your project will be evaluated through the code architecture and on these terms:**

- Focus on architecture and avoid *"quick and dirty"* implementations.
- Scalable, reusable, modular code and architecture. **You are building the architecture of a game from scratch that can scale to millions of players for years.**
- Mastery of SOLID principles of object-oriented programming
- Please choose any concept/design pattern for the test (MVC, ECS, MVP, MVVM, Reactive etc.), and please mention it.
- Minimise unnecessary errors and warnings

**Unity 2019.4 (LTS) is recommended for the test.**

**Avoid using for the test:**

- FindObjectBy...
- MonoBehaviour.Invoke()
- Too many Singletons or Static references
- Unused commented code

Please send us the following element **(mandatory)**:

- Unity Project (assets + project settings)
- Make a **ZIP** of the project and upload it via **Wetransfer**: <https://wetransfer.com/>

- Please mention the time (in number of hours) you spent for each part of the test.

**Please send your resume and the test to the [HR TEAM](#)**

Good Luck!