1. General Computer Science & Unity Knowledge

a - Stack is a memory address where local variables and functions call are allocated, they cannot grow at runtime, have a fixed allocated space size decided at compile time, the variables are allocated as a stack and after execution they are deleted from memory based on LIFO (**L**ast-**I**n, **F**irst-**O**ut). Heap is a memory address used like a resource by a program, they are called dynamic allocation because it is possible to change its size at runtime execution, space allocated in heap memory stays there until the resource is explicitly deallocated.

b - Value types are when the value of a variable is passed to a function, into the function the value can be changed but the original variable keeps the old value and to get this new value is necessary to explicitly assign a new value to it. Reference types is when a funtion receive the address of a variable and therefore all change done by that function will change the original variable value.

c - Software Design Patterns are patterns to help the developer to solve some known problems and software design, their was developed by Gof (Gag of Four) in ninetys and are largely used in Object Orientation Program nowadays. They can help a game development problem by provide solution likes a Abstract Factory that can be used to produce randomly enemies, or a Observer that can monitorate a state in the game an throw some behavior based on changes and Proxy that can be used to create specific instances of objects on demand like a creation of differents weapons only when the player need them.

d - In Unity Update function are called once per frame and therefore depend on the frame rate, your time interval its variavel and because of it is not reliable are use to general propose to update behavior and eventual animations, the FixedUpdate function are called at a specific time interval independently of frame rate it are used to make physics calculations, LateUpdate is called once per frame after Update has finished it can be used to make camera calculation in um third-person camera, ensure that the character move completely before the camera tracks its position

e - In Unity GameObjects are all objects or entities that can be manipulated on Unity scene. Components are the base class to everything attached to a GameObject.

f - Used to create objects that will not be attached to a GameObject.

g - Unity manage a lot of binaries file that is not easily handle by code versioning system, sometimes it can be a draw in development because file are slow to exchange (even when use something like git-lfs) and binary conflicts cannot be solved like code conflicts that make it much harder and time keeping

h - Nowadays we have a lot of mobile devices with differents specs and size that makes build a excellent app a hard task although Unity hide a lot of problems that could happen in differents mobiles devices some behavior still are hard to handle like resolution and screen size or load time because differents spec, to find the best equilibrio is for sure one of the most challenges on mobile development.

f - The Unity is just a tool to facilitate game development, they give you some good resources to create a game in a few steps. First we have the GameObject that are all objects in the Unity environment, second we have a Unity scene that is a binary file where all GameObjects take place and where we can see the game running. It is possible to compound the game scene using assets that are files from external tools like audio files and 3d models and we have a script file, where we can program a game behavior and build a game.

g - Assuming that I know the scene object that can be deformed or destroyed I would track the initial position e capture frames intermediated from the first iteration e save that information, and play it back and forth to manipulate the state and position of an object. To slow down specific objects could be possible to make some verification to um collider with a trigger that changes physics values to the actual object.