

CSS385: Assignment 4 Question Sheet:

Instructions:

- In questions where you are asked to explain, please be concise.
- Show your work when necessary, be neat, precise, and brief!
- To help us grade your assignments and return this to you in a timely fashion please:
 - Put your name and answers in the answer sheet only (separate link provided). Anything you write outside of the answer sheet **will not** be graded.
 - Provide your answers in the order of the problems.
 - Please use only one side of 8.5x11 paper.
 - Please make sure you bring a hardcopy print out **of the answer sheet (!!only!!)** to submit at the beginning of class. Please do not print out the problems.

Your assignment may not be graded if any of the above is violated, you have been warned.

1. I have created a 2D unity project and here is the setting on my MainCamera:



My game window size is 800-pixel wide by 600-pixels in height.

- (1pt) What is the total height (from bottom of the window to the top) of the game world that is visible through the game window?
- (1pt) What is the total width (from left of the window to the right) of the game world that is visible through the game window?
- (2pt) What is the coordinate of the lower-left corner of the game window? No! I am not talking about pixel value rather I am talking about the coordinate you must set to put an object at the lower-left corner of the game window.
- (2pt) There is an object located at the left-boundary of the game window and I update the position of this object with:

```
// Update is called once per frame
void Update () {
    transform.position += Time.smoothDeltaTime * mySpeed * transform.right;
}
```

What should the value of *mySpeed* be if I want my object to move to the right-boundary of the game window in about 10 seconds?

2. I created a new project with a new camera:



Here is the script that is attached to my global game manager:

```
if (null != mMainCamera) {  
    float maxY = mMainCamera.orthographicSize;  
    float maxX = mMainCamera.orthographicSize * mMainCamera.aspect;  
    float sizeX = 2 * maxX;  
    float sizeY = 2 * maxY;  
    float sizeZ = Mathf.Abs(mMainCamera.farClipPlane - mMainCamera.nearClipPlane);  
  
    // Make sure z-component is always zero  
    Vector3 c = mMainCamera.transform.position;  
    c.z = 0.0f;  
    mWorldBound.center = c;  
    mWorldBound.size = new Vector3(sizeX, sizeY, sizeZ);  
  
    mWorldCenter = new Vector2(c.x, c.y);  
    mWorldMin = new Vector2(mWorldBound.min.x, mWorldBound.min.y);  
    mWorldMax = new Vector2(mWorldBound.max.x, mWorldBound.max.y);  
}
```

Assuming *mMainCamera* is a reference to the *MainCamera*. For the following questions, your answers should be exact numeric values, or insufficient information to compute.

- (2pt) What are the values for mWorldBound.size.X, Y?
- (2pt) What are the values for mWorldCenter.X, Y?

3. (5pt) Here are some sample programming code we have used in GTCS1Lib

- **Code-A:** `World.SetWorldCoordinate(new Vector2(0, 0), kWorldWidth);`
- **Code-B:** `mHero = new XNACS1Rectangle(new Vector2, Width, Height, "Text");`
- **Code-C:** `mHero.RemoveFromAutoDrawSet();`
- **Code-D:** `mHero.Collided(mEnemy);`
- **Code-E:** `XNACS1Base.World.ClampAtWorldBound(mEnemy);`
- **Code-F:** calling of `XNACS1Base.UpdateWorld()`

For the following actions we can perform in Unity, which of the above GTCS1Lib programming code line is achieving the corresponding functionality. You should answer **None** if none of the above provided code achieves the corresponding Unity action.

For example,

- Destroy(GameObject): is most similar to **Code-C**; while
- Add a Rigidbody component to a GameObject: has **None** correspondence

What about for the following actions:

- a. Drag a texture from file system into the Assets window of my Unity project.
- b. Drag a texture from file system into the Scene window of my Unity project.
- c. Set the position, and size of my Main Camera.
- d. Drag a pre-defined script onto an existing GameObject.
- e. Implement the **OnTriggerEnter2D()** function.