I designed a simple 2D game where people can choose to hit gophers or bats, and there are easy and expert levels. I did this because I get the inspirations from the ball game.

The jslibs I used is Phaser and Underscorejs. I use a HTML5 game framework, because it provides an open source framework for me to develop my game. I get the Phaser tutorial from <http://phaser.io/tutorials/making-your-first-phaser-game/>. I also set up a development environment by using WAMPSERVER, so my game will run smoothly.

‘var game = new Phaser.Game(800, 600, Phaser.AUTO, 'game');’incorporates Phaser by creating an instance of a Phaser.Game object and assigning it to a local variable called 'game'. I set the width and the height of the canvas to be 800 x 600 pixels.

In order to achieve the game effect, I use Photoshop to make different sets of backgrounds for different game levels and get gophers and bats images online. I download the background music and sound effects from <http://www.2gei.com/sound/class/game_ui_interface/>,

I put all the photos and sounds into a file called assets. and use function ‘preload() game.load.image’ to load all the images and use ‘game.load.audio’ to load all the music and sounds.

We only use one background music for the previous game in class. To make the game more interactive, I use different background music for the main game page, gopher mode and bat mode respectively. I also add different sounds to make the game more alive: including the sound when the button is chosen, the ‘bang’ sound of the hammer , the ‘crying’ sound when object is hit. The crying sound is 3 seconds originally, I use what I learnt in class - setTimeout(function() { cryAudio.stop(); }, 500) to shorten it.

‘Game.add.sprites’ creates a simple sprite that is using our loaded image and displays it on-screen.

I also use Underscorejs from http://underscorejs.org/, a JavaScript library that provides useful functional programming helpers without extending any built-in objects. I use it for easier data manipulation. Different functions of underscorejs are used in developing the game, including:

\_.map: By mapping one gopher to one hole.

\_.without: Returns a copy of the array with all instances of the values removed. To remove all gophers and bats when they either slip away or being hit.

\_.extend: Copy all of the properties in the source objects over to the destination object, and return it. The last source will override properties of the same name in previous arguments. So we can use the same property names for different modes and difficulty levels.

\_.difference: Returns the values from array that are not present in the other arrays. I use it to make gophers coming out from the unoccupied holes.

\_.random: The gopher will come out from any random unoccupied holes

For Gophers easy level: 9 holes, maximum 2 gophers will appear at one time.

For Gophers expert level: 25 holes, maximum 6 gophers will appear at one time.

I use generation Rate, generation Interval, showDuration and targetSize to set the difficulty level.

For Bat easy level: 2 clouds, maximum 2 bats will come out from the cloud at one time.

For Bat expert level: 5 clouds, maximum 10 bats will come out from the cloud at one time.

I use the velocity, generation Interval, targetsize to set the difficulty level. As the bat is originally facing left, I use Sprite.anchor.setTo(.5, 0) , so that the bat can flip horizontally. And by making the (sprite.body.velocity.x < 0) true, the bat will fly to the left, else it will fly to the right. A velocity counter is added so the bat will fly in the same direction for at least 2 seconds and will not keep changing directions.

I add styling properties to the score texts and the texts appear at the end of the game.

In Phaser, State.counter += 1 will update the game state every frame (1/60 seconds). Counter is also used to make the target blinks after it is killed and make ‘Click to start a new game’ text blink to draw people’s attention. For the game assignment I did previously, the game will automatically restart after the time is up. To improve from it , by using ‘input enabled’ and ‘onInputDown’, the new game will start only when the user makes a click, and they will go back to the page where they can choose the game mode.

To keep the overall styling of the game consistent, I use ‘onkeypress Event’ instead of using a prompt window we learnt in class for user to key in name. I learnt it from <http://www.w3schools.com/jsref/event_onkeypress.asp>.

More detailed explanations of what I am doing are inside the code.

Due to time constraint, multi-user interaction is not placed inside. I think the game can be better if the highest score among multiple users will appear when the game ends.