**Question 1**

For the first question I had to write a program that changes the position of an ellipse with the current mouse X and Y co-ordinates on a mouse click. The first step was that I declared all the variables for the program such as clicked for the mouseClicked function set equal to zero, mx for the mouseX co-ordinate set to zero, my for the mouseY co-ordinate set equal to zero, speedx for the speed of the X co-ordinate set equal to ten and speedy for the speed of the Y co-ordinate set to two. Then I created the void setup and void draw functions, inside the void setup function I set the size of the window. Then I created the void mouseClicked function to listen for a mouse click event, inside the mouseClicked function I set the variable clicked equal to one making it true and changed the mx and my variables with the current mouseX and mouseY co-ordinates. Later In the void draw function I set the background to white and created an if statement to see if the mouse has been clicked, if the statement is true then the code inside the if statement will run. In the if statement the program then draws an ellipse with the X and Y co-ordinates set as the mx and my variables and with forty height and width. I also had to add the bounce effect with an if statement saying if mx is greater than or equal to six hundred (the width of the window) then sets speedx equal to speedx times minus one, I also had to the same thing for the Y co-ordinate bouncing effect.

For the first question I leant that I had to put the mouseX and mouseY inside variables instead of putting them inside the ellipse as the X and Y co-ordinates, otherwise the ellipse would keep on following the mouse after the mouse had been clicked. I had to put the variable inside the mouseClicked function as a result the ellipse X and Y co-ordinates would change on the mouse click.

**Question 2**

By the second question I had to do the same as the first question but this time the ellipse bouncing on the Y axis. For the first step I declared all the variables such as clicked for the mouseClicked function set to zero, mx for the mouseX co-ordinate, my for the mouseY co-ordinate, speedy for the speed of the Y co-ordinate and speedx for the speed of the X co-ordinate. Then I coded the void setup function and set the size of the window, I also coded the mouseClicked function and inside the mouseClicked function set the variable clicked equal to 1, affirming that the mouse has been clicked. In the mouseClicked function I also had to set the mx and my variables to the current position of the mouse, mouseX and mouseY. Finally in the void draw function I wrote an if statement stating if the clicked variable is equal to one making it true, if the statement is true then the program would draw an ellipse the with mx and my variables as the X and Y of the ellipse with forty height and width. I also had to add the bounce effect with an if statement saying if mx is greater than or equal to six hundred (the width of the window) then sets speedx equal to speedx times minus one, I also had to do the same thing for the Y co-ordinate bounce effect.

**Question 3**

In the third question I had to write a program where the ball would start bouncing around the window randomly while changing its colour when it touches the edges of the window. In the first step I declared all the variables for the program for example the variable clicked as an integer for the mouseClicked function, the variable mx and my as float set equal to zero and the variables speedx and speedy declared as float set to any random number from ten to twenty. Then I created the void setup function and set the background to white and furthermore created the mouseClicked function. In the mouse clicked function I set the variable clicked equal to 1 stating that the mouse has been clicked and set the mx and my variables to the current X and Y variables of the mouse, mouseX and mouseY co-ordinates. Later I created the void draw function, in the draw function I made an if statement to check if the clicked variable is equal to one, if the statement is true then the program draws an ellipse with the X and Y co-ordinates of the current mouse position with forty as the height and width. Later for the ellipse bounce effect I had to check if the variable mx is less than six hundred and set speedx equal to speedx times minus one but this time I also added a fill with random values from 255 for the colour of the ellipse (rgba). I did the same steps for the variable speedy as I did for the variable speedx only changing six hundred to four hundred and changing the variables.

For this question I learned that to make the ball change colours randomly I had to change the fill have all random values e.g. random(255).

**Question 4**

For the fourth question I had to write a program where the program would create an array with random numbers from ten to 100 that can only hold ten numbers. Firstly I created an array called numbers and created a variable called temp as an integer. Then I wrote a for loop where I declared the variable I as an integer check if the variable I is less than ten and also increment one to I after each iteration until I is less than ten. Later in the for loop I then got the variable numbers and put the index as I and I made that equal to a random number from ten to hundred as an integer so we get whole numbers. Later I had to initialise another for loop where I created the variable I again set it equal to zero and said if I is less than the length of the array, I also increment I by one each time. In the second for loop I then created another for loop where I initialised the variable j and set it equal to zero, check if j is less then I and increment j by one after each iteration. Lastly I created an if statement to check if numbers with the index I is less than numbers with the index j. Inside the if statement I set temp is equal to the variable numbers with the index I, at that point I set numbers with the index I equal to numbers with the new index j, I set numbers with the index j equal to temp the new sorted array.