

Homework sheet 2 for Unit 22 – Basics of ActionScript 3.0

1. How would you display the code view (window) on screen?
 - a. *F9 or **Window** → **Actions***
2. How would you let a multiple frame movie stay on one frame?
 - a. *Use `stop()`;*
3. How would you move “ball” horizontally 5 pixels per frame, continuously?
 - a. *//must use `ENTER_FRAME` event*
 - b. *`addEventListener(ENTER_FRAME, updateTheStage);`*
 - c. *`function updateTheStage(e:Event){`*
 - d. *`ball.x += 5;`*
 - e. *`}`*
4. How would you move “ball” vertically 5 pixels per frame, continuously?
 - a. *//must use `ENTER_FRAME` event*
 - b. *`addEventListener(ENTER_FRAME, updateTheStage);`*
 - c. *`function updateTheStage(e:Event){`*
 - d. *`ball.y += 5;`*
 - e. *`}`*
5. How would you double the speed of movement?
6. What does the following code do?
 - a. *`ball.x += 5; //move ball to the right by 5 pixels`*
 - b. *`ball.y +=10; //move ball downward by 10 pixels`*
 - c. *`var score : Number; //declare a variable called score of Number type`*
 - d. *if `scoreDisplay` is displaying the score now, what would be the value? 0, 10, or any number?*
 - i. *“NaN” – not a number*
 - e. *`var score : Number = 10; //declare variable “score” and assign 10 to it.`*

- f. if scoreDisplay is displaying the score now, what would be the value? 0, 10, or any number?
- i. **"10"**
- g. score += 10; //add 10 to score
- h. What would be the score display now?
- i. **"20"**
- i. If(ball.x <=0 || ball.x >= 550){ trace("The ball has hit the wall.");}
- i. *//Check to see if the ball is outside of the left wall or right wall (edge)*
 - ii. *//if it is then print out the message on screen "The ball has hit the wall."*
- j. {.....} *//used to block code together*
- k. function moveTheBall(){} *//declare a function called moveTheBall() with no actions specified (empty braces).*
7. For button or movie clip called "startBtn", how would it detect mouse clicking?
- a. *startBtn.addEventListener(MouseEvent.CLICK, handleClick);*
8. For the same button or movie clip, how would it respond to mouse clicking?
- a. *function handleClick(e:MouseEvent){*
 - b. *//do something, for example:*
 - c. *gotoAndStop(2);*
 - d. *}*
9. What is meant by data type and why is it used in ALL programming languages?
- a. *Data type is used to differentiate various data, such as text, numbers, sound and images*
 - b. *It is absolute essential because otherwise the computer would not know how to handle it. Why is it so? All data and programs stored in a computer are in 0s and 1s.*

c. *For example: What does this mean? (data types and why)*

d. 0010100000100101001011000010110000101111 on hard disk

e. 00 01000 00100101 00101100 00101100 00101111
(8bits – 1 byte per item)

f. 104 101 108 108 111 integer

g. h e l l o String

h.  BMP 8bit

i.

10. Name 5 different data type?

a. *Boolean, int, Number, Array, String, MovieClip,*

11. How would you declare a variable called “score” to keep score of the game?

a. *“var score : Number = 0;”*

12. Why is it necessary to declare a variable such as “score” before using it in the code?

a. *Once the variable is declared & initialised, the computer will allocate a specific address and space for it, and start tracking it, in case other sections of the code needs it. If not declared, the computer will not be able to find the house when delivering a letter (to update the score or retrieve its value, because it is not in that street (RAM).*

b. *A variable is a container used to keep data that changes. The name of the variable is the label on the container, the value is the content of the container.*

13. What is meant by “scope of a variable” and “life span of a variable”?

a. *Scope means accessibility of the variable. Imagine that you have a bag of gold locked inside your house, people from next house cannot access it, and people from street cannot access it. Only people inside the house can access it.*

- b. *If the bag of gold is on the street outside the house, then you, people in next house, people on the street can ALL access it.*
 - c. *“var score :Number = 0; //bag on street – global to the program*
 - d. *“score2 += 10; //will not work. //people on street cannot access the bag*
 - e. *function update(e:Event){*
 - f. *var score2 :Number = 0; //bag inside your house // local variable, used within the function only*
 - g. *score +=10; // will work //you access the bag on the street from your house*
 - h. *score2 +=10; //will work //you access the bag in your house from your house*
 - i. *}*
 - j. *Life of span = how long a variable keeps its value.*
 - k. *Local ones are reset every time the function is called*
 - l. *Global ones can keep the value till the end of the program*
14. Create a shape such as a rectangle, then use F8 to turn it into a BUTTON and then a MOVIE CLIP, compare the differences.
- a. *See the demo of play button and pause button which is of MovieClip.*
 - b. *See the demo of button startBtn which is of Button*
 - c. *The button can look different for hover, out, down*
 - d. *The movie clip can change from play to pause sign*
15. How would you bounce “ball” off the stage’s ceiling?
- a. *If(ball.y <=0){*
 - b. *ballYspeed = -ballYspeed;*
 - c. *}*
16. How would you bounce “ball” off the stage’s walls?
- a. *If(ball.x <=0){*
 - b. *ballXspeed = -ballXspeed;*
 - c. *}*
 - d. *If(ball.x >=550){*
 - e. *ballXspeed = -ballXspeed;*

f. }

g.

17. How would you bounce the “ball” off another object such as a brick?

a. If(ball.hitTestObject(brick)){

b. BallYspeed = - ballYspeed;

c. }

18. How would you use text display to show score?

a. Create the text box (TextField) on the stage (Dynamic text) and then name it

b. Update it : messageDisplay.text = “My message!”;

c. You can also generate it completely using code

19. Give an example of using IF statement

a. See above

20. Give an example of using FOR loop.

a. “for (i = bricks.length-1; i >=0; i--){

b. If(ball.hitTestObject(bricks[i])){

c. Trace(“Wow, one hit!”);

d. }

e. }//used to check all elements in an array

21. How would you detect if the ball has hit the paddle?

a. Do this yourself using Q17 for guidance

22. How would you detect if the ball has hit a brick?

a. See Q17

23. How would you keep and add scores?

a. Declare the variable “score”

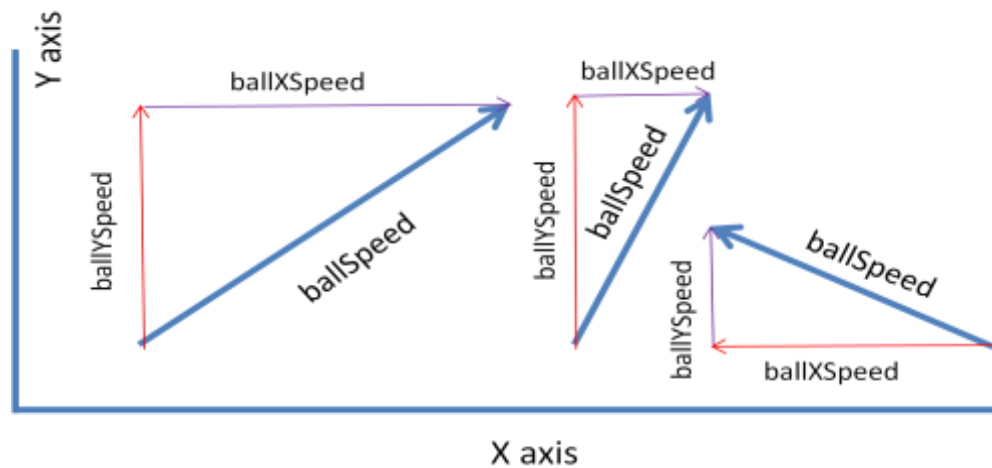
b. Then assign a new value to it

c. var score :Number = 0;

d. score = score + 10; or score += 10;

24. How would you randomly set up the speed and direction of the ball?

a. *//A ball's direction can be controlled by its speed!*



b.

c. *//if ballXspeed and ballYspeed are changed then the direction and speed of the ball will change!*

d. *//Use Math.random() to generate a random number between 0 and 1;*

e. *var ballXspeed :Number = Math.random()*10; //compare: "=5 - Math.random()*10;"*

f. *var ballYspeed :Number = Math.random()*10;*

g. *EventListener(Event.ENTER_FRAME, update);*

h. *function update(e:Event){*

i. *ball.x += ballXspeed;*

j. *ball.y += ballYspeed;*

k. *}*

25. How would you pause a game?

a. *//Pause a game means remove all the ears and eyes and just do nothing*

b. *//By remove the event listeners, especially the ENTER_FRAME event listener*

c. *//When you want to start again, add them back.*

d. *//if you use a timer, note down the timer value when paused, then*

e. *//reassign it back when restarting*

26. How would you re-start a game?

a. *See Q25*

27. How would you draw a line on the stage (canvas)?

- a. Prepare a shape, say a rectangle, as the canvas, then set up the line style (colour, thickness), then set up event listeners to listen to mouse event for drawing, such as down and up to represent pen down to draw, pen up to stop
- b. `"var myShape : Shape = new Shape();"`
- c. `"addChild(myShape);"`
- d. `"myShape.x/y=where you want it to be, it could cover the whole stage..."`
- e. `"myShape.graphics.lineStyle(4, 0xfffff);" //0xfffff = white, 0x000000 = black`
- f. `"myShape.graphics.moveTo(x1, y1);" //starting point of line`
- g. `"myShape.graphics.lineTo(x2, y2);" //end point of line`
- h. //if you want to draw with a mouse randomly, then you need to keep track of mouseX, mouseY from the moment of DOWN, then use them to draw till the moment of UP, For example
- i. `"var coordinates = new Array();"`
- j. `"coordinates.push(new Point(mouseX, mouseY));"`
- k. `for(i = 0; i < coordinates.length-1; i++){`
- l. `myShape.graphics.moveTo(coordinates[i].x, coordinates[i].y);`
- m. `myShape.graphics.lineTo(coordinates[i+1].x, coordinates[i+1].y);`
- n. `} //eof FOR. Join the dots together!`
- o. `"coordinates = new Array();" //clear the points that have been used - drawn already`
- p.

28. How would you cut an object into two halves?

- a. Method 1 – cheat. "hide the original object, in its place play another movie clip that shows two halves." – For this you need to prepare the movie clip in advance
- b. `"originalObject.visible = false; or
originalObject.parent.removeChild(originalObject);"`
- c. `"var newMovie : MovieClipClass = new MovieClipClass();"`
- d. `"addChild(newMovie);"`
- e. `"newMovie.x = where you want it – originalObject.x;"`
- f. `"newMovie.y = where you want it – originalObject.y;"`
- g.

29. How would you make one object explode when it is clicked or hit by something?
- Create a movie clip, set up the linkage (a class that can be used in AS code)*
 - Use code to create the object using that class, then add it to the board*
 - Suppose the class is called "MyApple"*
 - "var appleExplosion : MyApple;"*
 - "appleExplosion = new MyApple();"*
 - "addChild(appleExplosion);"*
 - "appleExplosion.x =where you want it to be; e.g. mouseX;"*
 - "appleExplosion.y =where you want it to be; e.g. mouseY;"*
30. How do I determine the end of a level?
- Many different ways. For example, when score reaches certain level, when the clock reaches certain point, when all the enemies are killed, when more than half of the enemies are killed, when the player reaches certain geographical point on the stag.....*
 - "If(score >=1000) { levelComplete(); }"*
 - "If(timer >=1000) { levelComplete(); }"*
 - "If(brickAMT <=0) { levelComplete(); }" //brickAMT keeps the number of bricks left on stage*
 - "function levelComplete(){*
 - //clear ALL the listeners, especially the ENTER_FRAME listeners*
 - removeEventListener(event. , eventHandler.);*
 - //prepare the message to be displayed*
 - messageDisplay.text = "Well done! Level completed!";*
 - //set up buttons for next level or play again*
 - }"*
31. How do I start the next level?
- //you need a clickable item to respond to mouse clicking –*
 - //set up the event listener*
 - //set up the event handler*
 - //THEN the same way as you designed the level start button*
32. How to remove a movie clip once it finished?
- If(myMC.currentFrame == myMC.totalFrames){*

```

b. myMC.parent.removeChild(myMC);
c. }

```

What does this mean? (data types and why)

001 0100000100101001011000010110000101111
 on hard disk

001 01000 00100101 00101100 00101100
 00101111 8bits – 1 byte

104 101 108 108 111 integer, or number

h e l l o String

■ ■ ■ ■ ■ BMP 8bit

“hello” “104 101 108 108 111” in decimal numbers –“68 65 6C 6C 6F” in hexadecimal numbers, “ u+0068 u+0065 u+006C u+006C u+006F” in Unicode numbers



