**Learning Activity 2 – Vectors and Matrices**

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|  | * The measurements of four cylinders are as follows:
* Their height are: 8, 6, 5.5, 10 and,
* Their radius are: 1.5, 3, 4, 0.5
* Read these data into two vectors by giving the vectors appropriate names.
* Calculate the volume of each cylinder as follows:

Volume = pi \* radius \* radius \* height* The Volumes should be saved in another vector and displayed accordingly.
* Save the above script as **Activity 2\_5\_2\_1**
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| Activity |
|  | * The following script contain some common errors. Copy and paste the faulty code into a new R script. Analyse the code and remove the errors so that the script can execute.

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| vector1 <- c('one', 'two, 'three', 'four')vec.var <- var(c(1, 3, 3, 4, 5,))vec.mean <- mean(c(1, 3, 3, 4, 5)vec.Min <- Min(c(5, 4, 3, 2, 1))vec.max <- maxx(c(5, 4, 3, 2, 1))vector2 <- c('a', 'b', 'f', 'g")vec.varvec.meanvec.minvec.maxvector2 |

* Save the above script as **Activity 2\_5\_2\_3**
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| Activity |
| Activity | * Create three vectors x, y and z with each vector having 3 elements.
* Vector x has integer elements 1, 4 and 5.
* Vector y has integer elements 4, 9 and 6.
* Vector z has integer elements 2, 1 and 7.
* Combine the above 3 vectors to form the following matrix A:

 x y z[1,] 1 4 2[2,] 4 9 1[3,] 5 6 7* Change the row names to a, b and c.
* Save the above script as **Activity 2\_5\_3\_2**
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| Activity | * Create a vector with integers 1 to 12. Convert the vector to a 4 x 3 matrix B. Note that the column names should be x, y, z and the row names a, b, c, d.
* Matrix B should therefore be as follows:

 x y za 1 5 9b 2 6 10c 3 7 11d 4 8 12 |
| Activity | * This activity continues from the previous activity where you had created matrices A and B.
* Try the following: C = B + A
* You should get the following error:

Error in B + A : non-conformable arrays* This is due to the fact that B is a 4 x 3 matrix while A is a 3 x 3 matrix.
* Create a vector z1 with integer values: 5, 9 and 0
* Using rbind(), add this vector to A and rename the rows.
* Now, type C = B + A and display C.
* You should have the following result:

 x y za 2 9 11b 6 15 11c 8 13 18d 9 17 12* Save the above script as **Activity 2\_5\_3\_3**
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