**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** |
| 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.  |  | | --- | | 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.var  vec.mean  vec.min  vec.max  vector2 |  * Save the above script as **Activity 2\_5\_2\_3** |
| 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** |
| 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 z  a 1 5 9  b 2 6 10  c 3 7 11  d 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 z  a 2 9 11  b 6 15 11  c 8 13 18  d 9 17 12   * Save the above script as **Activity 2\_5\_3\_3** |