EXPERIMENT Report

# EXPERIMENT

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| Report Date | Project Name | Prepared By |
| August 26, 2019 | Discrete Biostatistics | Andrew Penland |

# QUESTION: What do we want to figure out?

How to store multidimensional data in R.

# PROCESS: WHAT WILL WE DO TO ANSWER THE QUESTION?

Do an Internet search, talk to people as needed.

Estimated time: 45 minutes

# RESULTS: WHAT HAPPENED IN THE PROCESS?

I met with Gatlin and Justin. We found several helpful resources with good information, and we now know at least the basics of multidimensional data types in R.

# Conclusions : WHAT DID WE LEARN?

I learned how to create lists, arrays, and matrices in R, and how to access the data in each one.

For examples, let’s try to create a basic 2-by-3 array with the numbers 1 through 6.

We could do this with a list:

x <- c(1,2,3)

y <- c(4,5,6)

my.list <- list(x,y)

We could do this with an array:

my.array <- array(1:6, dim = c(2,3))

We could do this with a matrix:

A <- matrix(1:6, nrow = 2, ncol = 3)

**Note:** In a surprise move, R fills *down the columns* first rather than across the rows for arrays and matrices. Need to be careful about that.

# CONJECTURES & FUTURE QUESTIONS: WHAT COMES NEXT?

* What are the advantages and disadvantages of each type with regard to memory allocation?
* How about access speed?

# DOCUMENTATION: WHERE CAN WE SEE THE RESULTS?

* <http://www.r-tutor.com/r-introduction/list>
* <https://www.dummies.com/programming/r/how-to-create-an-array-in-r/>
* <http://www.r-tutor.com/r-introduction/matrix>