**Instructions: Write a short Python script to perform the following tasks. Your submission should include the code used to solve the problem and the solution. If you are not planning on using Python for this course, you may submit code in the programming language you plan to utilize.**

**Problem 1:**

The included data file, Homework1.dat, is a pretend set of grades for an assignment. The first column is the last name, the second column is the first name, and the third column is the grade.

a) Determine the number of students who passed the assignment (grade > 60)

b) Determine the number of students who made a B on the assignment (80<= grade < 90)

c) Print the names of all students who made an A on the assignment. If no students made an A, print a message saying so.

**Problem 2:**

Write a file called primes500.dat which lists all prime numbers less than 500.

**Problem 3:**

Find the (a) dot product and (b) outer product of the following two vectors (Use numpy):

a = (1 1 0) b = (2 1 3)

**Problem 4:**

A perfect number is a positive integer that is equal to the sum of its positive divisors, including 1, but excluding itself. As an example, 6 is a perfect number because the divisors of 6 are 1, 2, and 3, and 1+2+3=6. Find all perfect numbers less than 500.