

Clark Atlanta University
Department of Computer and information Science
CIS103,
Final Project
Fall 2016

Complete the following problems using Matlab software. You need to show your actual codes and actual solution. You need to submit the project Monday . No late project will be accepted.

1. Create a 10x10 matrix of 1's and display the results.
2.
 - A) Create 3x3 identity matrix
 - b) Create a matrix B using submatrices made up of elementary matrices: one, zeros, and identity matrix of the special sizes
 - c) Show the diagonal of Matrix B in a row vector without the transpose
 - d) Create Vectors d, d1, and d2 of length 4, 3, 2 respectively
 - e) Create Matrix D use part (d) by putting d on the main diagonal, d1 on the first upper diagonal and d2 on the second lower diagonal

3. Write a script files that, when executed, greet you, displays the date and time, and courses Your Favorite TA or professor.

4. Plot

$$y = e^{-0.4x} \sin x, \quad 0 \leq x \leq 4\pi$$

Take 10, 50, and 100 points in the interval.

5. Create a vector and a matrix with the following commands: $v=0:0.2:12$; and $M=[\sin(v); \cos(v)]$: Find the size of v and M. Extract the first 10 elements of each row of the matrix, and display them as column vectors.
6. All points with coordinate $x = r\cos\theta$ and $y = r\sin\theta$, where r is a constant. Lie on a circle with radius r, for example, they satisfy the equation $x^2 + y^2 = r^2$. Create a column vector for θ with the values $0, \pi/4, \pi/2, 3\pi/4, \pi$ and $5\pi/4$. Take $r = 2$ and compute the column vectors a and y.
7. Calculate the interest on your money: The interest you get at the end pf years, at a flat rate of r%, depends on how the interest is compounded. If the interest is added to you're a constant k times a year, and the principle amount you invested is X_0 , the at the end of n years you would have

$$X = X_0 \left(1 + \frac{r}{k}\right)^{kn} \quad \text{Amount of money in your account. Write a function to}$$

compute the interest $(X-X_0)$ on your account for a given X, n, r, and k. Use the function to find the defense between the interest paid on \$1000 at rate of 6% a year at the end of 5 years if the interest is compounded (i) quarterly (k=4) and (ii) daily (k=365).

8. Do problem 4.39 from your text book.
9. Do problem 39. From your text book
10. Do problem 3.16 from your book.