**MATLAB 2-2 assingment**

Write a conditional matlab script that calculates f for any x and y values.

1. Define the following x array with the given elements. For any given number, find how many elements are greater than that number in x.
2. Fibonacci series is defined as the following equation.

0, 1, 1, 2, 3, 5, 8, 13 . . .

Using the equation find 968th Fibonacci number.

1. Find e5 for degree n = 100 by using the Taylor expansion of e.

**Hint:**Taylor expansion of e is . Use built in factorial function of Matlab.

1. For what degree(n) the error is less than 1e-6 for the Taylor expansion of sin(π/6) function. Evaluate the result using While expression.

**Hint:** Taylor expansion of sin(x) is .

1. A man has 10000$ and he wants to make better profit using compound interest. The bank gives him three option. First option is %5 annual compound interest rate for 10 years, second option is %6 annual compound interest rate for 9 years and third option is %7 annual compound interest rate for 8 years. Write a matlab script to understand which option is more profitable.

**Hint:** Pseudo code should be

For <condition>

Switch <expression>

Case 1

Case 2

Case 3

End Switch

End For

Compound interest formula:

*A*(*t*) = *A*0(1 + *i*)*t*

A(t) is latest amount of money

A0 is İnitial money

i is compound interest rate in year

t time in year

Mail to [seckiner@metu.edu.tr](mailto:seckiner@metu.edu.tr) after you finish your assignment. The format should be name\_surname\_id.rar . Rar your assignment in a folder and mail the solution of assignment.

Usefull examples:

Average calculation:

Clear

% initialize - prepare to read 1st datum

i = 1;

% read and count data values

data = input('Enter datum ("Enter" to stop): ');

while ~isempty(data) %data?

y(i) = data; % - yes: store

i = i+1; % count

data = input('Enter datum ("Enter" to stop): ');

end

% no more data - compute average

sumY = sum(y); % compute sum

[dummy, n] = size(y); % determine # values = # columns

averageY = sumY/n;

% print result

disp(['the average of the ', num2str(n), ' values is ', num2str(averageY)])

**Shipping cost calculation:**

clear

% initialize parameters

baseRate = 10;

baseWeight = 2;

maxStandardWeight = 70;

additional = 3.75;

overweight = 10;

% read and validate weight

weight = input('Enter package weight(lb.): ');

if isempty(weight)

disp('you MUST enter a weight!')

elseif weight > 100

disp(['weight of ', num2str(weight), ' exceeds 100 pounds - please see Federal Express.'])

% compute shipping cost

else

% standard package

cost = baseRate + ceil(weight-baseWeight)\*additional;

% overweight charge

if (weight > maxStandardWeight)

cost = cost + overweight;

end

end

% print results

disp(['total shipping cost for ', num2str(weight), ' pounds is $', num2str(cost)]);