

## ME 318M Homework #4

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### Problem 1:

```
1 - clear
2
3 - Fibonacci(1) = input('Enter the first Fibonacci number: ');
4 - Fibonacci(2) = input('Enter the second Fibonacci number: ');
5 - Limit = input('What number should this program stop at? ');
6 - NumberAtIndex = 0;
7 - index = 3;
8
9     %while NumberAtIndex < Limit
10         %disp(index)
11         %     Fibonacci(index) = Fibonacci(index-1) + Fibonacci(index-2);
12         %     NumberAtIndex = Fibonacci(index)
13         %     index = index + 1
14         %     pause
15     %end
16
17 - for index = 3:inf
18     Fibonacci(index) = Fibonacci(index-1) + Fibonacci(index-2);
19     if Fibonacci(index) > Limit
20         break
21     end
22 - end
23
24 - Fibonacci(1:index-1)|
```

```
>> Homework4Problem1
Enter the first Fibonacci number: 0
Enter the second Fibonacci number: 1
What number should this program stop at? 10
Warning: Too many FOR loop iterations. Stopping
after 9223372036854775806 iterations.
> In Homework4Problem1 (line 17)
```

```
ans =

    0     1     1     2     3     5     8
```

```
>> Homework4Problem1
Enter the first Fibonacci number: 1
Enter the second Fibonacci number: 2
What number should this program stop at? 25
Warning: Too many FOR loop iterations. Stopping
after 9223372036854775806 iterations.
> In Homework4Problem1 (line 17)
```

```
ans =

    1     2     3     5     8    13    21
```

Workspace	
Name ^	Value
ans	[1,2,3,5,8,13,21]
Fibonacci	[1,2,3,5,8,13,21,34]
index	8
Limit	25
NumberAtInd...	0

## Problem 2:

```
clear
Start = false;

while Start == false
    UserInput = input('How many integer numbers do you want in your array?
');
    if UserInput == floor(UserInput)
        Start = true;
    else
        disp('Hey that is not an integer - try again!')
    end
end

for i = 1:UserInput
    NewNumber = input(['What number do you want at index ', num2str(i), '?
']);
    PlaceNumber = false;
    while PlaceNumber == false
        if NewNumber == floor(NewNumber)
            PlaceNumber = true;
        else
            disp('Hey that is not an integer - try again!')
        end
    end
    UserArray(i) = NewNumber;
    disp([num2str(UserArray(i)), ' is at index ', num2str(i), '. '])
end

UserArray
length = length(UserArray);
eveni = 1;
oddi = 1;

for i = 1:length
    if mod(UserArray(i),2) == 0
        %for eveni = 1:length
        EvenArray(eveni) = UserArray(i);
        eveni = eveni + 1;
        %end
    else
        %for oddi = 1:length
        OddArray(oddi) = UserArray(i);
        oddi = oddi + 1;
        %end
    end
end

EvenArray
OddArray
```

```
>> Homework4Problem2
```

```
How many integer numbers do you want in your array?
```

```
What number do you want at index 1? 3
```

```
3 is at index 1.
```

```
What number do you want at index 2? 2
```

```
2 is at index 2.
```

```
What number do you want at index 3? 0
```

```
0 is at index 3.
```

```
What number do you want at index 4? 43
```

```
43 is at index 4.
```

```
What number do you want at index 5? 205
```

```
205 is at index 5.
```

```
UserArray =
```

```
    3    2    0   43  205
```

```
EvenArray =
```

```
    2    0
```

```
OddArray =
```

```
    3   43  205
```

Workspace	
Name ^	Value
EvenArray	[2,0]
eveni	3
i	5
length	5
NewNumber	205
OddArray	[3,43,205]
oddi	4
PlaceNumber	1
Start	1
UserArray	[3,2,0,43,205]
UserInput	5

### Problem 3:

```
>> M1 = [2 1 7; 5 4 1; 3 1 5]; M2 = [2 7; 4 9; 5 2];
```

```
>> M3 = M1 + M2 * M2'
```

M3 =

```
    55    72    31
    76   101    39
    27    39    34
```

```
>> det(M3)
```

ans =

```
2.3300e+03
```

Workspace	
Name ^	Value
ans	2.3300e+03
M1	[2,1,7;5,4,1;3,1,5]
M2	[2,7;4,9;5,2]
M3	[55,72,31;76,101,39;27,39,34]