

# CS368 MATLAB Programming

## Lecture 14

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Based on lecture slides by Michael O'Neill and Beck Hasti

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# Grades

## Admin

- Another update tonight after midnight.
- You can submit *P7* until next Wednesday.
- Email me if you would like to submit *P1* to *P6*.
- You can submit *P1* to *P7* code until next Sunday.
- Email me if you would like an extension to complete coursework after next Sunday (requires department approval).









# Matrix Index

## Quiz

- $m = [1 \ 2; 3 \ 4]; m(3)$
- $A : 2$
- $B : 3$
- $C : \text{error}$



# Matrix Index Too

## Quiz

- $m = [1 \ 2 \ 3; \ 4 \ 5 \ 6; \ 7 \ 8 \ 9]; \ m(7)$
- $A : 3$
- $B : 7$
- $C : \text{error}$

# Ones Vector

## Quiz

- *sum(ones(2))*
- A : 2
- B : 4
- C : something else

# Zeros Vector

## Quiz

- $sum(sum(ones(2)))$
- $A : 2$
- $B : 4$
- $C : \text{something else}$

# Not!

## Quiz

- $1 \neq 1$
- A : 0
- B : 1
- C : error

# Replicate Randomness

## Quiz

- $f = @(x)(x + rand); f(1) == f(1)$
- A : 0
- B : 1
- C : error

# Replicate Randomness Too

## Quiz

- `rng(1); f = @(x)(x + rand); f(1) == f(1)`
- A : 0
- B : 1
- C : error

# Hermitian Transpose

## Quiz

- $m = [0 \ i; 0 \ 0]'$ ;  $m(2, 1)$
- $A : i$
- $B : -i$
- $C : 0$

# Floating Point

## Quiz

- $0.1 + 0.1 + 0.1 - 0.3$
- A : 0
- B : 0.0000
- C : something else



# Floating Point Too

## Quiz

- $0.1 * 3 - 0.3$
- A : 0
- B : 0.0000
- C : something else

# Singular Matrix Inversion

## Quiz

- $m = \text{ones}(2) / \text{zeros}(2); m(2, 2)$
- $A : \text{NaN}$
- $B : \text{Inf}$
- $C : \text{error}$

# Singular Matrix Inversion Too

## Quiz

- $m = \text{ones}(2) \setminus \text{zeros}(2); m(2, 2)$
- $A : \text{NaN}$
- $B : \text{Inf}$
- $C : \text{error}$

# Diff Operator

## Quiz

- $m = \text{diff}([1 \ 2 \ 3]) + [1 \ 2 \ 3]; m(1)$
- A : 1
- B : 2
- C : error

# Colon Operator

## Quiz

- $m = \text{diff}(1:3) + 1:3; m(1)$
- A : 1
- B : 2
- C : error

# Imaginary Stuff

## Quiz

- $i == j$
- $A : 0$
- $B : 1$
- $C : \text{something else}$

# Assign I

## Quiz

- $i = 3; 1 * i + 1$
- $A : 1 + i$
- $B : 4$
- $C : \text{something else}$

# Assign I Again

## Quiz

- $i = 3; 1i + 1$
- $A : 1 + i$
- $B : 4$
- $C : \text{something else}$



# Length of Matrix

## Quiz

- *length* ([1 2; 3 4])
- A : 2
- B : 4
- C : something else

# Length of Matrix Again

## Quiz

- *length* ([1 2; 3 4; 5 6])
- A : 2
- B : 3
- C : something else



# Double Comparison Too

## Quiz

- $x = 4; 1 < x < 3$
- A : 0
- B : 1
- C : error

# Double Comparison Three

## Quiz

- $x = 0; 1 < x < 3$
- A : 0
- B : 1
- C : error

# Not a Number

## Quiz

- $\max(1, 0/0)$
- A : 0
- B : 1
- C : something else

# *Infinity*

## Quiz

- $\max(1, 1/0)$
- A : 0
- B : 1
- C : something else

# Any

## Quiz

- *any*([0, 0/0])
- A : 0
- B : 1
- C : something else



# All

## Quiz

- *all* ([1, 0/0])
- A : 0
- B : 1
- C : something else







# Apps

Code

# Blank Slide