MULTIMEDIA CLASS 2016 TA CLASS

SLIDE 1:

Introduction to Image Processing using MATLAB

FIRST THINGS FIRST

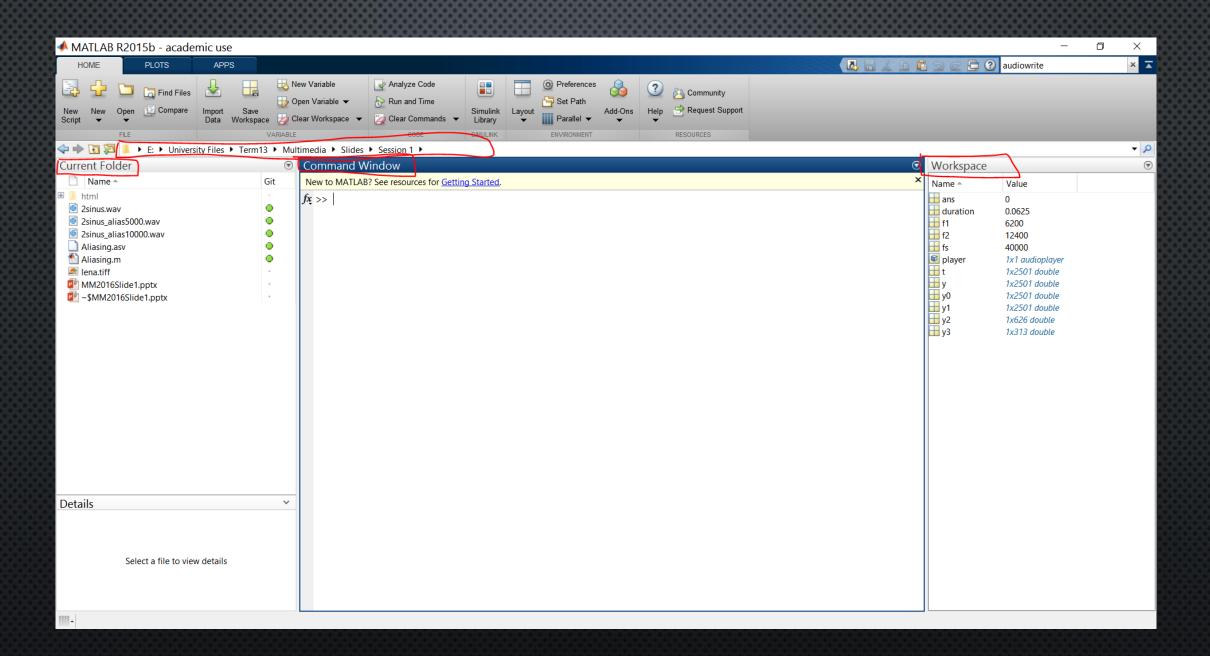
- EDMODO IS FOR HANDING OUT YOUR HOMEWORK AND ANNOUNCEMENTS.
 - GROUP CODE: A6S3AZ
 - EACH HOMEWORK USUALLY HAS ABOUT 7-10 DAYS
- I WILL BE IN SPRL LAB ON MONDAYS, IN CASE YOU HAVE ANY QUESTIONS (3RD FLOOR)
- ** PLAGIARISM IS "NOT" TOLERATED! (YOU'RE BETTER OFF NOT TURNING IN YOUR HOMEWORK)**
- ABOUT HALF OF YOUR SCORE IS THE HOMEWORK THAT YOU TURN IN
- THE REST WILL BE YOUR FINAL COURSE PROJECT
 - Do something cool, you will enjoy it ;-)
 - START THINKING ABOUT IT
 - TRY NEW FIELDS IN COMPUTER VISION / IMAGE PROCESSING / AUDIO PROCESSING / ...
 - IT TAKES MORE THAN A COUPLE OF DAYS TO LEARN USING MATLAB!!!

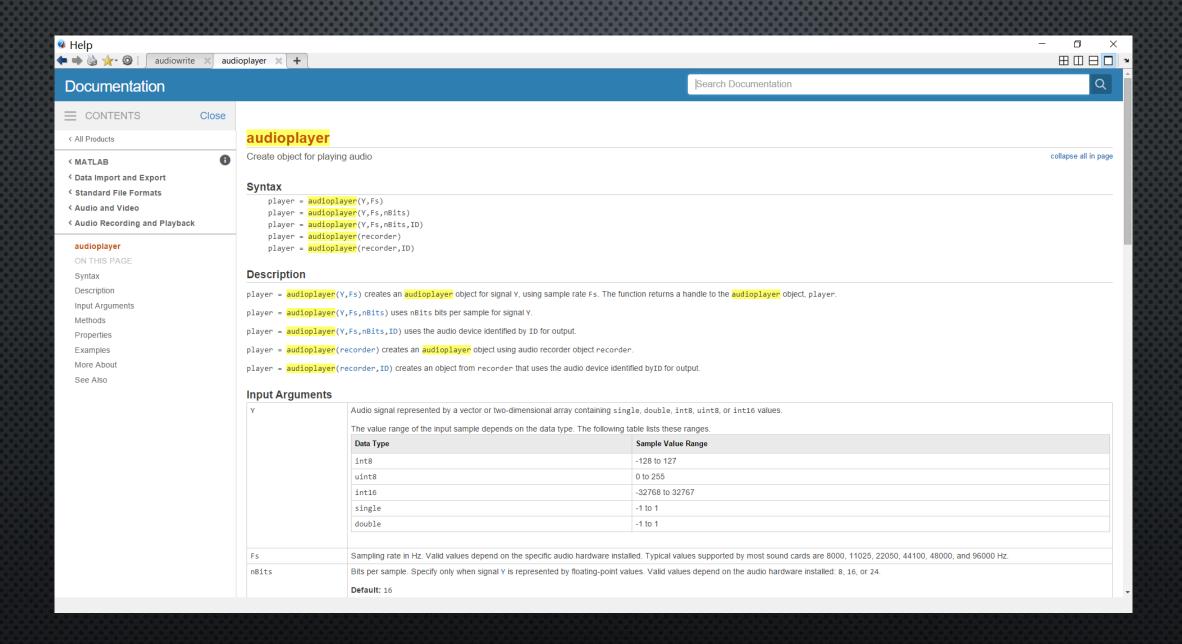
OUTLINE

- INTRODUCTION TO MATLAB
 - BASICS AND EXAMPLES
- Introduction to Image Representation in MATLAB
 - BASICS AND EXAMPLES

MHA WALLYBS

- MATLAB = MATRIX LABORATORY
- MATLAB IS A HIGH-LEVEL LANGUAGE AND INTERACTIVE ENVIRONMENT THAT ENABLES YOU TO PERFORM COMPUTATIONALLY INTENSIVE TASKS FASTER THAN WITH TRADITIONAL PROGRAMMING LANGUAGES SUCH AS C, C++ AND FORTRAN.
- MATLAB IS AN INTERACTIVE, INTERPRETED LANGUAGE THAT IS DESIGNED FOR FAST NUMERICAL MATRIX CALCULATIONS
- A HUGE AMOUNT OF TOOLBOXES AND CODE SAMPLES (CHECK OUT YOUR MATLAB HELP)
- A DE FACTO STANDARD FRAMEWORK FOR ACADEMIC ADVANCEMENTS
 - EXCEPT FOR ITS COMPETITOR IN COMPUTER VISION: OPENCY





MATLAB BASICS

• TO FIND OUT THE TYPE AND VALUE OF A VARIABLE YOU ARE USING: WHO, WHOS



```
>> whos y
Name Size Bytes Class Attributes

y 1x2501 20008 double
```

- SAVING AND LOADING VARIABLES TO *.MAT FILES: SAVE, LOAD
- A GOOD PRACTICE TO INCLUDE IN YOUR FILES BEFORE DOING ANYTHING:
 - CLEAR ALL, CLC, CLOSE ALL, FCLOSE ALL;

MATLAB BASICS

- MAIN MATLAB VARIABLE TYPE: MATRIX
- CREATING MATRICES:
 - A = [1 2 3; 4 5 6; 7 8 9]
 - SPECIAL MATRICES: ZEROS, ONES, RAND, RANDN, EYE
 - FINDING SIZE OF MATRIX: SIZE(A) = [3 3]
 - SUM(A), SUM(A, 2), SUM(SUM(A))
 - CODE
- FINDING SOMETHING IN A MATIX:
 - FIND (A < 4)

CONTROL STATEMENTS

- If STATEMENT
- SWITCH STATEMENT
- FOR LOOP
- WHILE LOOP
 - Continue
 - BREAK
 - END
- WHENEVER IN DOUBT, USE MATLAB HELP

M-FILES

- There are 2 kinds of *.m files
 - Functions
 - Well, you should know what functions are, if not, Google it ©
 - WE WILL GET INTO MORE DETAILS LATER
 - SCRIPTS
 - SCRIPTS ARE SIMPLE MATLAB CODE THAT WILL BE RUN LINE BY LINE
 - IT'S LIKE YOU WOULD RUN THEM LINE BY LINE IN COMMAND WINDOW

ANY QUESTIONS?

BTW, WE HAVE GIT!

CHECK MY WEBSITE FOR DOWNLOADING MATLAB AND GETTING THE GIT LINK WWW.NMAHMOUDI.IR/TEACHING.PHP

LET'S GET TO BUSINESS

CHECK THE MATLAB CODE