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| 15-110 recitation 2 |

**Recap**

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|  | * Binary numbers and data representation * Functions: input, return value, side effects * Graphics * Variable Scope |

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# **Reminders!**

HW-1 due Monday 9/14 @ Noon EDT!

Check-1 Grades are out!

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| Problems |

# **Algorithm Trace**

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| **Problem** | Algorithm:  Start off with a variable *result*, which is an empty string “”  Based on an integer input *n*, do the following:   1. if n is negative do the following    1. add ‘A’ to result 2. if the absolute value of n mod 5 is equal to 0 (|n| % 5 == 0)    1. add ‘B’ to result 3. if n is greater than 5    1. add ‘C’ to result 4. if none of the above    1. add ‘D’ to result 5. output result   What is the result when n = -5?  What is the result when n = 105?  What is the result when n = 3? |

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# **Decimal -> Binary**

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| **Problem** | Convert 38 to binary using 8 bits.  Convert 101 to binary using 8 bits. |

# **Binary -> Decimal**

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| **Problem** | What is 10?  What is 1010100?  What is 11+1? (binary) |

# **Fast Facts**

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| **Problem** | What are the smallest and largest integers that can be represented with 4 bits?  How many bits in a byte?  How can we store 18 in 4 digit binary?  What is ASCII?  What is Unicode? Why was it created? |

# **Function Practice**

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| **Problem** | For the following function, label each variable by its scope.  time = “8:00 AM”  def alarm(name):  sound = “BEEP BEEP!!”  print(sound, “It’s”, time, “ so get out of bed”, name, “!”)  time?  name?  sound?  Write a function *average* that takes 4 numbers as arguments and returns the average of the four numbers.  Write a function *converter* that takes in an int and a string, converts the int to a string, and returns the two strings concatenated together.  Write a function *introduction* that takes in a name and age and prints the message “My name is <name> and I am <age> years old”  Write a function *area* that uses the *math* module, takes in a radius and a canvas of size 400 by 400, draws a circle of that radius in the center of the canvas, and returns the area of a circle. |

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