Algorithms Society

# Easy Problems

## Easy Set 0: Super Easy

1. Write a method to print out “Hello World”. [1]
2. Write a method that uses a loop to print out “Hello World” 15 times. [1]
3. Write a method that uses a loop to print out all the multiples of 5 between 5 and 100. [1]

## Easy Set 1: Integers

1. Write a method sum that takes in two integer parameters and returns the sum of them. [2]
2. Write a method product that takes in two integer parameters and returns the product of them. [2]
3. Write a method min that takes in two integer parameters and returns which one is smaller. [2]
4. Write a method max that takes in two integer parameters and returns which one is bigger. [2]
5. Write a method square that takes in an integer and returns the square of the integer. [2]
6. Write a method pow that takes two integers and returns the first integer to the power of the second. [2]

## Easy Set 2: Strings

1. Write a method addExclamation that takes in a string and returns a mutated version of the string with an exclamation mark at the end. [4]
2. Write a method squareLength that takes in a string and returns the square of the length of the string. [4]
3. Write a method addExclamation2 that takes in a string and returns a mutated version of the string with an exclamation mark, if and only if the string is longer than 5 characters. [4]
4. Write a method called addExclamation3 that takes in a string and returns a mutated version of the string with an exclamation mark, if and only if the string is longer than 25 characters. [4]
5. Write a method called first4 that takes in a string and returns a mutated string with the first 4 characters, or as many characters as there are, if the length is less than 4. [4]
6. Write a method called takeN, that takes a string str and an integer n and returns the first n characters concatenated with the last n characters. [4]
7. Write a method called firstHalf, that takes a string and returns the first half of the string. [4]
8. Write a method called repeatStar that takes an integer n and returns a string containing ‘\*’ repeated n times. [4]
9. Write a method called interlace that takes two strings and returns a string containing the first letter of the first string, followed by the first letter of the second string, etc. [4]
10. Write a method called containsAlpha that takes in a string and returns true or false, depending on whether the string contains the character ‘Alpha’; you may not use the method contains. [4]

## East Set 3: Characters

1. Write a method called secondCharacter that takes a string and returns the second character. [4]
2. Write a method called encrypt that takes an uppercase character and shifts it thirteen places, e.g. ‘A’ would go to ‘N’ and ‘Z’ would go to ‘M’. [4]
3. Write a method called containsA that takes in a string and returns true or false, depending on whether the string contains the character ‘A’; you may not use the method contains. [4]
4. Write a method that takes in a character and returns true if and only if, the character is ‘A’. [4]
5. Write a method that takes in two characters and returns true if and only if, both characters are lowercase. [4]
6. Write a method that takes in a character and returns it into its corresponding ASCII value as an integer. [4]
7. Write a method that takes in a character e.g. ‘A’ and converts it into its corresponding position in the alphabet. [4]

## Easy Set 4: Mixed

1. Write a method that takes in a string and returns the sum of the positions in the alphabet of the letters in the string. [8]
2. Write a method that takes in a string and returns the product of the positions in the alphabet of the letter in the string. [8]
3. Write a method that takes in an integer and returns true if and only if, the integer is divisible by 3. [8]
4. Write a method that takes in a string and returns true if and only if, the square of the length of the string and the sum of the positions in the alphabet of the letters in the string are divisible by 3. [8]
5. Write a method that takes in a string and returns a mutated version of the string without any uppercase characters. [8]
6. Write a method that takes in two string and concatenates the two strings. [8]
7. Write a method that takes in a string and a character and appends the character to the string. [8]
8. Write a method that takes in a string and a character and prepends the character to the string. [8]
9. Write a method that takes in a number, and returns the sum of the digits of the string. [8]
10. Write a method that takes in a string, and returns true if and only if the square of the length of the string is divisible by 3 and the sum of the digits of the positions of the characters in the alphabet of a string is divisible by 3. [8]
11. Write a method that takes in a string, and returns the number of vowels in the string. [8]

## Easy Set 5: Arrays

1. Write a method called createArray that takes in an integer n and returns an integer array of length n, where each item is set to 4. [16]
2. Write a method called createArray2 that takes in an integer n and returns an integer array or length n containing all the numbers between 1 to n. [16]
3. Write a method called arraySum that takes in an integer array xs and returns the sum of all the numbers in xs. [16]
4. Write a method called arrayProduct that takes in an integer array xs and returns the product of all the numbers in xs. [16]
5. Write a method called arraySumSquare that takes in an integer array xs and returns the sum of the squares of all the numbers in xs. [16]
6. Write a method called arrayMin that takes in an integer array xs and returns the smallest number in xs. [16]
7. Write a method called arrayMax that takes in an integer array xs and returns the largest number in xs. [16]
8. Write a method called doubleArray that takes in an integer array and returns the integer array, with all the values doubled. [16]
9. Write a method called timesArray that takes in an integer array and an integer n and multiplies each item in the array by n. [16]
10. Write a method called concatArray that takes in two integer arrays and concatenates them together. [16]