

CSE 352

Artificial Intelligence and Expert Systems Lab

1. Create a program that prompts the user to enter two integers and displays their greatest common divisor. Use a function named *gcd(parameter1, parameter2)* here.
2. Write a function that computes the sum of the digits in an integer. Use the following function header: *def sumDigits(n):*. Now write a test program that prompts the user to enter an integer and displays the sum of all its digits.

Example:

Input: 1234 Output: 10

3. Write the functions with the following headers:

def reverse(number): , def isPalindrome(number):

Use the reverse function to implement isPalindrome. Write a test program that prompts the user to enter an integer and reports whether the integer is a palindrome.

Example:

Input: 12321 Output: Palindrome.

Input: 124 Output: Not Palindrome.

4. Write the following function to display three numbers in increasing order:

def displaySortedNumbers(num1, num2, num3)

Write a test program that prompts the user to enter three numbers and invokes the function to display them in increasing order.

Example:

Enter three numbers: 3, 2.4, 5

The sorted numbers are 2.4, 3, 5

5. Write a function that returns the number of days in a year using the following header:

def numberOfDays(year):

Write a test program that displays the number of days in the years from 2010 to 2020.

6. Write a program that prompts the user to enter a decimal number and converts it into a hex number as a string. The following headers are:

def decimalToHex(decimalValue): and *def toHexChar(hexValue):*

Example:

Enter a decimal number: 1234

The hex number is 4D2

7. Evaluate 4 – Queens problem.

8. Write two functions named *def isValid(side1,side2,side3):* and *def area(side1,side2,side3):*

Write a test program that reads three sides for a triangle and computes the area if the input is valid. Otherwise, it displays that the input is invalid.

Example:

Enter three sides in double: 1, 3, 1

Input is invalid.

Enter three sides in double: 1, 1, 1

The area of the triangle is 0.43

9. Use the following function to compute the distance between two points.

def distance (x1, y1, x2, y2):

10. Twin primes are a pair of prime numbers that differ by 2. For example, 3 and 5, 5 and 7, and 11 and 13 are twin primes. Write a function (*def TwinPrime(range)*) to find all twin primes less than 200. Display the output using main function as follows:

(3, 5)

(5, 7)

(11, 13)

(17, 19)....