Python Activity 17):

1)Some websites impose certain rules for passwords. Write a method that checks whether a string is a valid password. Suppose the password rules are as follows:

■ A password must have at least eight characters.

■ A password consists of only letters and digits.

■ A password must contain at least two digits.

Write a program that prompts the user to enter a password and displays Valid Password if the rules are followed or Invalid Password otherwise.

2)Write a test program that prompts the user to enter a phone number as a string. The input number may contain letters. The program translates a letter (uppercase or lowercase) to a digit and leaves all other characters intact. Here is a sample run of the program:

Enter a string: 1-800-Flowers

1-800-3569377

Enter a string: 1800flowers

18003569377

3)A palindromic prime is a prime number and also palindromic. For example, 131 is a prime and also a palindromic prime, as are 313 and 757. Write a program that displays the first 100 palindromic prime numbers. Display 10 numbers per line, separated by exactly one space, as follows:

2 3 5 7 11 101 131 151 181 191

313 353 373 383 727 757 787 797 919 929

4)Craps is a popular dice game played in casinos. Write a program to play a variation of the game, as follows: Roll two dice. Each die has six faces representing values 1, 2, …, and 6, respectively. Check the sum of the two dice. If the sum is 2, 3, or 12 (called craps), you lose; if the sum is 7 or 11 (called natural), you win; if the sum is another value (i.e., 4, 5, 6, 8, 9, or 10), a point is established. Continue to roll the dice until either a 7 or the same point value is rolled. If 7 is rolled, you lose. Otherwise, you win. Your program acts as a single player.

Here are some sample runs.

You rolled 5 + 6 = 11

You win

You rolled 1 + 2 = 3

You lose

You rolled 4 + 4 = 8 point is 8

You rolled 6 + 2 = 8

You win

You rolled 3 + 2 = 5 point is 5

You rolled 2 + 5 = 7

You lose

5)Write a program that displays the date and time.

Here is a sample run:

Current date and time is May 16, 2012 10:34:23

6)(Assign grades) Write a program that reads student scores, gets the best score, and then assigns grades based on the following scheme: Grade is A if score is Ú best - 10 Grade is B if score is Ú best - 20; Grade is C if score is Ú best - 30; Grade is D if score is Ú best - 40; Grade is F otherwise. The program prompts the user to enter the total number of students, then prompts the user to enter all of the scores, and concludes by displaying the grades. Here is a sample run

Enter the number of students: 4

Enter 4 scores: 40 55 70 58

Student 0 score is 40 and grade is C

Student 1 score is 55 and grade is B

Student 2 score is 70 and grade is A

Student 3 score is 58 and grade is B

7)(Count occurrence of numbers) Write a program that reads the integers between 1 and 100 and counts the occurrences of each. Assume the input ends with 0. Here is a sample run of the program:

Enter the integers between 1 and 100: 2 5 6 5 4 3 23 43 2 0

2 occurs 2 times

3 occurs 1 time

4 occurs 1 time

5 occurs 2 times

6 occurs 1 time

23 occurs 1 time

43 occurs 1 time

8)(Print distinct numbers) Write a program that reads in ten numbers and displays the number of distinct numbers and the distinct numbers separated by exactly one space (i.e., if a number appears multiple times, it is displayed only once). (Hint: Read a number and store it to an array if it is new. If the number is already in the array, ignore it.) After the input, the array contains the distinct numbers. Here is the sample run of the program:

Enter ten numbers: 1 2 3 2 1 6 3 4 5 2

The number of distinct numbers is 6

The distinct numbers are: 1 2 3 6 4 5

9)Write a test program that prompts the user to enter ten numbers, invokes this method to return the minimum value, and displays the minimum value. Here is a sample run of the program:

Enter ten numbers: 1.9 2.5 3.7 2 1.5 6 3 4 5 2

The minimum number is: 1.5

10)Write a test program that prompts the user to enter a list and displays whether the list is sorted or not. Here is a sample run. Note that the first number in the input indicates the number of the elements in the list. This number is not part of the list.

Enter list: 8 10 1 5 16 61 9 11 1

The list is not sorted

Enter list: 10 1 1 3 4 4 5 7 9 11 21

The list is already sorted