**CS 170 Lab**

**Lab #9**

**Objectives**

This Lab explores decision structures and their applications. You will implement some of the programs that use decision structures.

**Relational Operators**

1. Write each of the following on the Python shell:

x=10

y= 100

1. Write each of the following on the Python shell and record your results:

|  |  |
| --- | --- |
| x >y |  |
| x <y |  |
| x = = (y/10) |  |
| x \*\* 2 < x+y |  |
| x != y |  |
| x >=y |  |
| x <=y |  |
| x >=(y/10) |  |

1. Write your comments.

**Programs**

1. Programming Exercise #2 Page 230.

A certain CS professor gives five-point quizzes that are graded on the scale 5-A, 4-B, 3-C, 2-D, 1-F, 0-F. Write a program that accepts a quiz score as an input and uses a decision structure to calculate the corresponding grade.

1. Programming Exercise #4 Page 230.

A certain college classifies students according to credits earned. A student with less than 7 credits is a Freshman. At least 7 credits are required to be a Sophomore, 16 to be a Junior and 26 to be classified as a Senior. Write a program that calculates class standing from the number of credits earned.

1. Programming Exercise #8 Page 231.

A person is eligible to be a US senator if they are at least 30 years old and have been a US citizen for at least 9 years. To be a US representative these numbers are 25 and 7, respectively. Write a program that accepts a person’s age and years of citizenship as input and outputs their eligibility for the Senate and House.

1. Programming Exercise #11 Page 231.

A year is a leap year if it is divisible by 4, unless it is a century year that is not divisible by 400. (1800 and 1900 are not leap years while 1600 and 2000 are.) Write a program that calculates whether a year is a leap year.