Assignment D

Dices:

Using the SMT-LIB language, this code defines three dice, d1, d2, and d3. SMT (Satisfiability Modulo Theories) solvers are used to determine whether a given logical formula is satisfiable, i.e., whether a set of values exists for the variables in the formula that makes it true.

The constants f1\_1, f1\_2, f1\_3, f1\_4, f1\_5, and f1\_6 represent the faces of the first die, d1, where f1\_1 represents the value on the first face, f1\_2 represents the value on the second face, and so on. Similar constants are defined for the second and third dice, d2 and d3.

The function d1 represents the first die and returns the value on the face corresponding to the input value x. For example, if x is 4, d1 returns the value on the fourth face of the die. Similar functions are defined for the second and third dice.

The assert statement at the end of the code adds constraints to the variables. It states that the values on the faces of all three dice must be between 1 and 9, inclusive and that every two faces of each die must have the same value, but the values between the "pairs" of faces must be different.

Coins:

This code is using an SMT solver to find three positive integers, x, y, and z, that represent denominations of coins such that:

The denominations are unique, i.e., x is not equal to y or z, y is not equal to x or z, and z is not equal to x or y.

The denominations can be used to make 20, 23, and 29 centos. For example, the combination of 6, 7, and 7 centos can be used to make 20 centos.