1. For a group of 7 people, find the probability that all 4 seasons (winter, spring, summer, fall)

occur at least once each among their birthdays, assuming that all seasons are equally likely.

**Answer:**

From the given question we can understand that each person is been allotted one season out of four (winter, spring, summer, fall) so there are 48 chances

Number of chances that one or more season has no people having their birthday is as follows

By use of inclusion and exclusion is: 4C1\*38 - 4C2\*28 + 4C3\*18

Probability=)=1-0.37=0.63

2. Alice attends a small college in which each class meets only once a week. She is deciding

between 30 non-overlapping classes. There are 6 classes to choose from for each day of the

week, Monday through Friday. Trusting in the benevolence of randomness, Alice decides to

register for 7 randomly selected classes out of the 30, with all choices equally likely. What is

the probability that she will have classes every day, Monday through Friday?

**Answer:**

This is also a problem of inclusion and exclusion:

Probability=114/377=0.3024(apporx.)