­­



Submitted to

:

Sir. Bakhtawar Baloch

***BS-Software Engineering 4th-E***

Title: Assignment 3

Stats & Prob

Jibran Naeem

Roll# SP-21-111



National University of Modern Languages

**Probability:**

Probability is a mathematical term used to talk about the likelihood of something happening. It’s the ability to understand and predict an outcome. We generally use probability to understand the world around us to judge what is likely to happen and what isn’t likely to happen.

Real-life can be chaotic, and lots of things happen that don’t seem to make any sense. You can’t always know what’s going to happen. But you can do your best, with the help of mathematics, to predict what is going to happen so you can make sound decisions every day. Tossing of Coin

**Types of Probability:**

**Classical probability:**

This is a basic approach to probability. Think of rolling dice and coin tossing. You look at all the possible scenarios that action can lead to and record the actual occurrences. The only results you can get when flipping a coin are heads or tails. If you flip the coin ten times, you measure the results ten times and write what happened. This is the simplest method to measure probability.

**Experimental probability:**

This is based on the number of total possible outcomes by the total possible number of trials. When you flip a coin, your options are heads and tails; a total of two outcomes. The total number of trials is found by the total times the coin is flipped. If it’s flipped 50 times, then lands on heads 30 times, the experimental probability is then 30/50.

**Theoretical probability:**

This is an approach that focuses on the possible chances of something happening. If you want to know the theoretical probability of a die roll landing on the number 3, you must first find out the total number of outcomes that exist.

**Real Life Examples**

**1.Weather Forecast:**

Here’s a simple use of probability in real life that you likely already do. We always check the weather forecast before we plan a big outing. Sometimes the forecaster declares that there’s a 60 percent chance of rain. We might decide to delay our outing because we trust this forecast. But where did the “60 percent” come from? Meteorologists use expensive equipment and algorithms to understand the likelihood of weather happenings. They look at the historical data, combine it with current trends, and look at the chances of rain occurring on a certain day.

**2.Card Games:**

The card game Rummy uses probability, as well as permutations and combinations to guesstimate the kind of cards that will end up on the table. Poker odds are another great application of probability in real life. Players use probability to estimate their chances of getting a good hand, a bad hand, and whether they should bet more or simply fold their hands. Probability and statistics is a major part of card games, and this is why poker is so difficult. Sometimes, you get a bad hand, and there’s nothing you can do about it. Unless you’re gutsy and can bluff your way out of a dire situation.

**3.Traffic Signals:**

What’s the average amount of time you’ll spend waiting in traffic? Did you know traffic signals work on probability as well? Roads with high traffic have higher waiting times because of traffic signals.

It’s programmed into the signals because the people that create and set up these signals understand the average number of people that need to cross the roads and understand the average number of vehicles in an area.

You can understand the flow of traffic in a city and even estimate the number of green lights you’ll end up with if you take pen and paper in hand and write down all the possibilities.