



PROBABILITAS

Aryan Eka Prastya Nugraha, S.E., M.Pd
2022

RULES



Events, Sample Spaces, and Probability

Let's begin our treatment of probability with straightforward examples that are easily described. With the aid of these simple examples, we can introduce important definitions that will help us develop the notion of probability more easily



Suppose a coin is tossed once and the up face is recorded. The result we see is called an observation, or measurement, and the process of making an observation is called an experiment.



Notice that our definition of experiment is broader than the one used in the physical sciences, which brings to mind test tubes, microscopes, and other laboratory equipment. Statistical experiments may include, in addition to these things, recording an Internet user's preference for a Web browser, recording a voter's opinion on an important political issue, measuring the amount of dissolved oxygen in a polluted river, observing the level of anxiety of a test taker, counting the number of errors in an inventory, and observing the fraction of insects killed by a new insecticide. The point is that a statistical experiment can be almost any act of observation, as long as the outcome is uncertain.

Problem Two coins are tossed, and their up faces are recorded. List all the sample points for this experiment.

Solution Even for a seemingly trivial experiment, we must be careful when listing the sample points. At first glance, we might expect one of three basic outcomes:

Observe two heads; Observe two tails; or Observe one head and one tail. However, further reflection reveals that the last of these, Observe one head and one tail, can be decomposed into two outcomes: Head on coin 1, Tail on coin 2; and Tail on coin 1, Head on coin 2.

A useful tool for illustrating this notion is a **tree diagram**. Figure 3.1 shows a tree diagram for this experiment. At the top of the “tree” there are two branches, representing

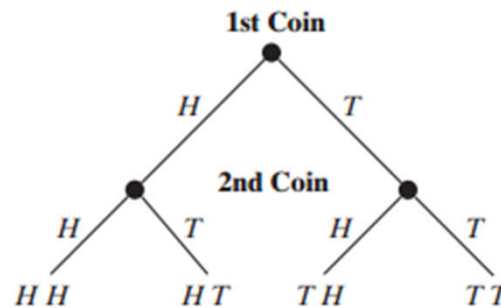


Figure 3.1

Tree diagram for the coin-tossing experiment

the two outcomes (H or T) for the first tossed coin. Each of these outcomes results in two more branches, representing the two outcomes (H or T) for the second tossed coin. Consequently, after tossing both coins, you can see that we have four sample points:

1. Observe HH
2. Observe HT
3. Observe TH
4. Observe TT

where H in the first position means “Head on coin 1,” H in the second position means “Head on coin 2,” and so on.

Look Back Even if the coins are identical in appearance, they are, in fact, two distinct coins. Thus, the sample points must account for this distinction.

Uji Hipotesis Satu Sampel

Uji satu sampel untuk rata-rata digunakan untuk menguji rata-rata sampel apakah sesuai dengan rata-rata populasi. Pengujian ini dilakukan untuk memperoleh keyakinan atas nilai rata-rata suatu sampel.

Contoh: Data nilai skor TOEFL mahasiswa semester akhir Fakultas Ekonomi

No	Nilai Skor TOEFL			
1	412	512	480	550
2	423	325	463	420
3	392	452	295	365
4	425	444	420	425
5	450	366	512	480
6	380	385	560	350
7	385	412	322	525
8	440	423	420	510
9	465	440	380	369
10	344	426	395	390



Dari hasil penelitian sebelumnya diketahui bahwa rata-rata skor TOEFL mahasiswa untuk seluruh mahasiswa universitas adalah 415 dengan deviasi standar 55. Dari hasil tersebut, ujilah apakah benar pernyataan bahwa rata-rata TOEFL mahasiswa adalah 415.

Jawab

Rumusan hipotesis dari pengujian ini adalah:

$H : = 415$

$H_a : \neq 415$

Uji Satu Sampel untuk Rata-rata dengan Aplikasi SPSS Untuk mengetahui varians dari populasi dari data yang sebelumnya kita pakai, maka uji yang kita gunakan adalah uji t.

Uji t digunakan untuk menguji rata-rata satu sampel jika jumlah sampel kurang dari 30 atau varians dari populasi tidak diketahui. Tahap-tahap pengujian dengan menggunakan program SPSS adalah sebagai berikut:

1. Masukkan data skor TOEFL tersebut dalam jendela Data View SPSS, dengan cara yang sama di mana semua data dikelompokkan dalam satu variabel. Beri nama variabel dengan Skor, kemudian isi Label dengan Skor TOEFL Mahasiswa.
 2. Dari menu Analyze, pilih menu Compare Means, kemudian pilih One-Sampel T Test sehingga keluar jendela berikut.
 3. Masukkan variabel skor TOEFL mahasiswa dalam kolom Test Variable.
 4. Abaikan menu yang lain.
 5. Klik tombol Ok
-

REFLEKSI

Informasi penting hari ini

Manfaat penting dari informasi penting hari ini

Tindak lanjut yang dapat saudara lakukan



Thank You