

EE5609 Assignment 2

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Abstract—This document contains the solution of complex number using matrix method.

Download latex and python codes from

https://github.com/abhishekt711/EE5600/tree/master/Assignment_2

we got the outcome randomly as follows:

Two heads: 112 times

One head: 257 times

No Head: 131 times

Let $X_1\{0,1\}$ represent the first coin and $X_2\{0,1\}$ represent the second coin, where 0 represents tail and 1 represents head.

1 PROBLEM

Two coins are tossed simultaneously 500 times and we get

Two heads: 105 times

One head: 275 times

No Head: 120 times

Find the probability of occurrence of these events.

2 EXPLANATION

Let $X_1\{0,1\}$ represent the first coin and $X_2\{0,1\}$ represent the second coin, where 0 represents tail and 1 represents head.

$$X = X_1 + X_2 \quad (2.0.1)$$

Probability of two heads:

$$Pr(X = 2) = \frac{105}{500} \quad (2.0.2)$$

$$= 0.21 \quad (2.0.3)$$

Probability of one head:

$$Pr(X = 1) = \frac{275}{500} \quad (2.0.4)$$

$$= 0.55 \quad (2.0.5)$$

Probability of no heads:

$$Pr(X = 0) = \frac{120}{500} \quad (2.0.6)$$

$$= 0.24 \quad (2.0.7)$$

3 RANDOM BINOMIAL DISTRIBUTION

We have generated the outcomes randomly.

Two coins are tossed simultaneously 500 times and

$$X = X_1 + X_2 \quad (3.0.1)$$

Probability of two heads:

$$Pr(X = 2) = \frac{112}{500} \quad (3.0.2)$$

$$= 0.224 \quad (3.0.3)$$

Probability of one head:

$$Pr(X = 1) = \frac{257}{500} \quad (3.0.4)$$

$$= 0.514 \quad (3.0.5)$$

Probability of no heads:

$$Pr(X = 0) = \frac{131}{500} \quad (3.0.6)$$

$$= 0.262 \quad (3.0.7)$$