Task 7

08:00 Task 7

Probability Vs Statistics

09:00 Probability

Model — Data

10:00 Causes — Events

Statistics

11:00

a coin has head or Tail

12:00

Quiz: Data = {Head, Head, Head}

01:00 will it always come up

YES — NO

02:00 Fair coin

Fair coin:

03:00 P(Heads) = 0.5

P(Tails) = 0.5

04:00

loaded Coin:-

05:00 P(Heads) = 1 — 100%

P(Tails) = 0

06:00 P(Heads) + P(Tails) = 1

P(Heads) = 0.75

07:00 P(Tails) = 0.25

P(Tails) + P(Heads) = 1

08:00 P(A) = 1 − P(¬A)

H, T

P(Heads), P(Heads)

P(H,H) = 0.5 — P(H) = 0.5

Truth Table

Truth Table

Flip1	Flip2	P(Flip1), P(Flip2)	
H	H	0,25	0,36
H	T	0,25	0,24
T	H	0,25	0,24
T	T	0,25	0,16

∴ P(H,H) = P(H) × P(H) = 0,25

Add: 1

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P(H|H) = 1

if P(H) = 1 → P(T) = 0

H	H	1
H	T	0
T	H	0
T	T	0

One Head

P(Exactly one H) = 0.5

P(H) = 0.5

P(T) = 0.5

H	H	0,25
H	T	0,25
T	H	0,25
T	T	0,25

→ + = 0.5

P(Exactly one H in 3 flips) = 0,375 — 3 × 1/8

P(H) = 0.5

P(T) = 0.5

Flip1	Flip2	Flip3	H=0, T=1	
H	H	H	1/8	P(H) = 0,6
H	H	T		0,216
H	T	H		0,144
H	T	T		0,144
T	H	H		0,096
T	H	T		0,144
T	T	H		0,096
T	T	T	1/8	0,096
				0,064

Σ = 1 — P(H) = 0,288

Event Roll:-

Fair Die: P() = 1/6

3 Even, 3 odd

P(Die = Even) = 3 · 1/6 = 1/2

Throw A Fair Die Twice!

P(Double) = 0,166

1	1	1/6 × 1/6 = 1/36
2	2	
3	3	
4	4	
5	5	
6	6	

Σ = 1/6

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