

1

2

3

M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]

BITS Pilani
Pilani Campus

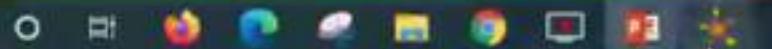
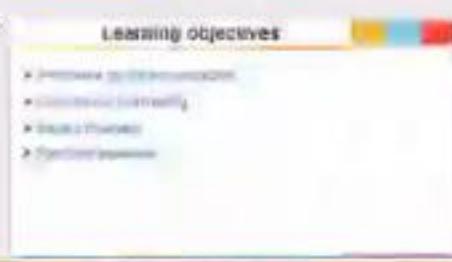
T Vamsidar

FILE

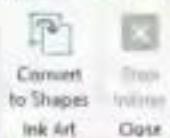
HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER PENS

Color Thickness
Convert to Shapes
Ink Art
Close

Default Lecture







Default Section

1

M Tech(Data Science & Engineering)
Introduction to Statistical Methods(2 SH)
BITS Pilani F. Vazquez

2

Webinar Session No - 8
23 Nov - 2021
Timings : 7.30 to 9.00 PM

3

Learning objectives

- Probability on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

M Tech(Data Science & Introduction to Statistical Methods(2 SH))

BITS Pilani
Ranibeth Chatterjee

Virtual Classroom

Chat Participants (64)

Disable group chat
Kishan
yes

Sahil Singh Kaur
Good Evening Sir

Siddhartha Verma Kar
getting some vibration sound

Rakesh R
Good Evening Sir

Abhishek Singh P
Yes, but with some jarring sound in the background

DAGAVADESHAN EL JONED

ABHAY NAMDAR JONED

GULBANU RAJ JONED

Sahil Singh Kaur
yes there is some noise

MOHIT PAUL J JONED

3 KAUSTUBA JONED

Starting to discuss
Hello everyone...
1931

FILE **HOME** **INSERT** **DESIGN** **TRANSITIONS** **ANIMATIONS** **SLIDE SHOW** **REVIEW** **VIEW** **DEVELOPER** **INK TOOLS** **PENS**

Sign in

Pen Highlighter Eraser **Line** **Select Objects**

Write **Color** **Thickness** **Convert to Shapes** **Ink Art** **Drop Inking** **Close**

Default Section

1  M Tech(Data Science & Engineering)
Introduction to Statistical Methods(STM)
T. Venkateswaran
BITSPilani

2  Webinar Session No - 1
23-Nov-2021
Timings : 7.30 to 8.00 PM
BITSPilani

3 Learning objectives

- ▶ Problems on Basic probability
- ▶ Conditional Probability
- ▶ Baye's theorem
- ▶ Random variables

PENS

Virtual Classroom

Chat **Participants (64)**

Disable group chat

Sahoo Sujit Kumar
Good Evening Sir

Gagaphavali Venkateswaran
getting some vibration sound

Rajesh A
Good Evening Sir

Jyoti Bhattacharya P
Yes, but with some jarring sound in the background

RAGAVENDRA K JOINED

ASHAY NAMBAR JOINED

GEETANJALI RAI JOINED

Lakshmi Suguna
yes there is some noise

MONIT PAUL JOINED

SAPATHA JOINED

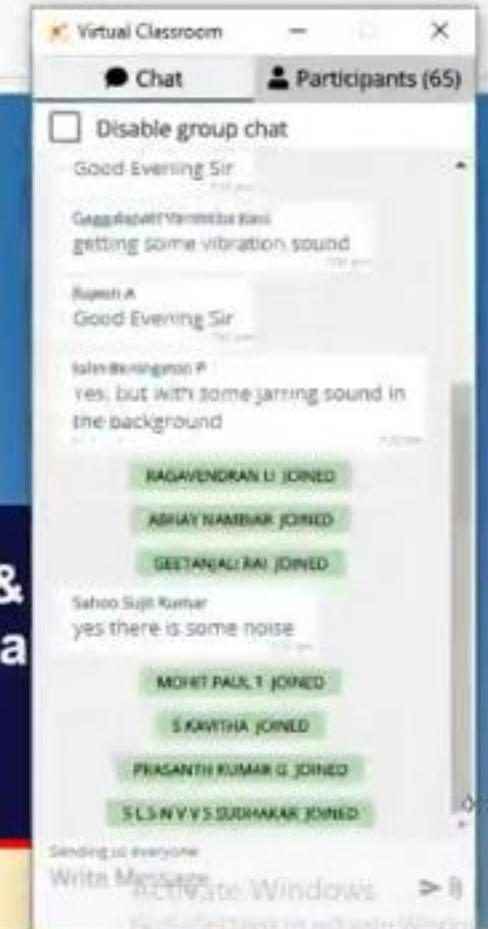
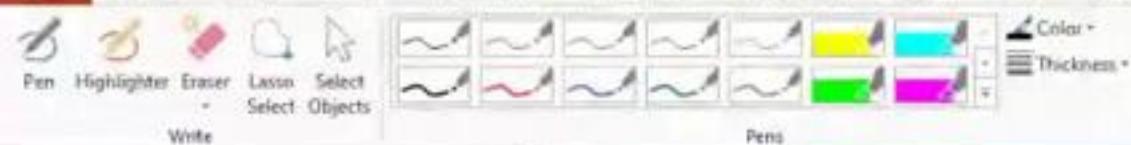
PRASANTH KUMAR G JOINED

Sending us everyone

Write Message **>**

SLIDE 1 OF 58 **ENGLISH (INDIA)** **NOTES** **COMMENTS** **SEARCH** **1932** **ENG** **23-11-2021** **21**

Type here to search

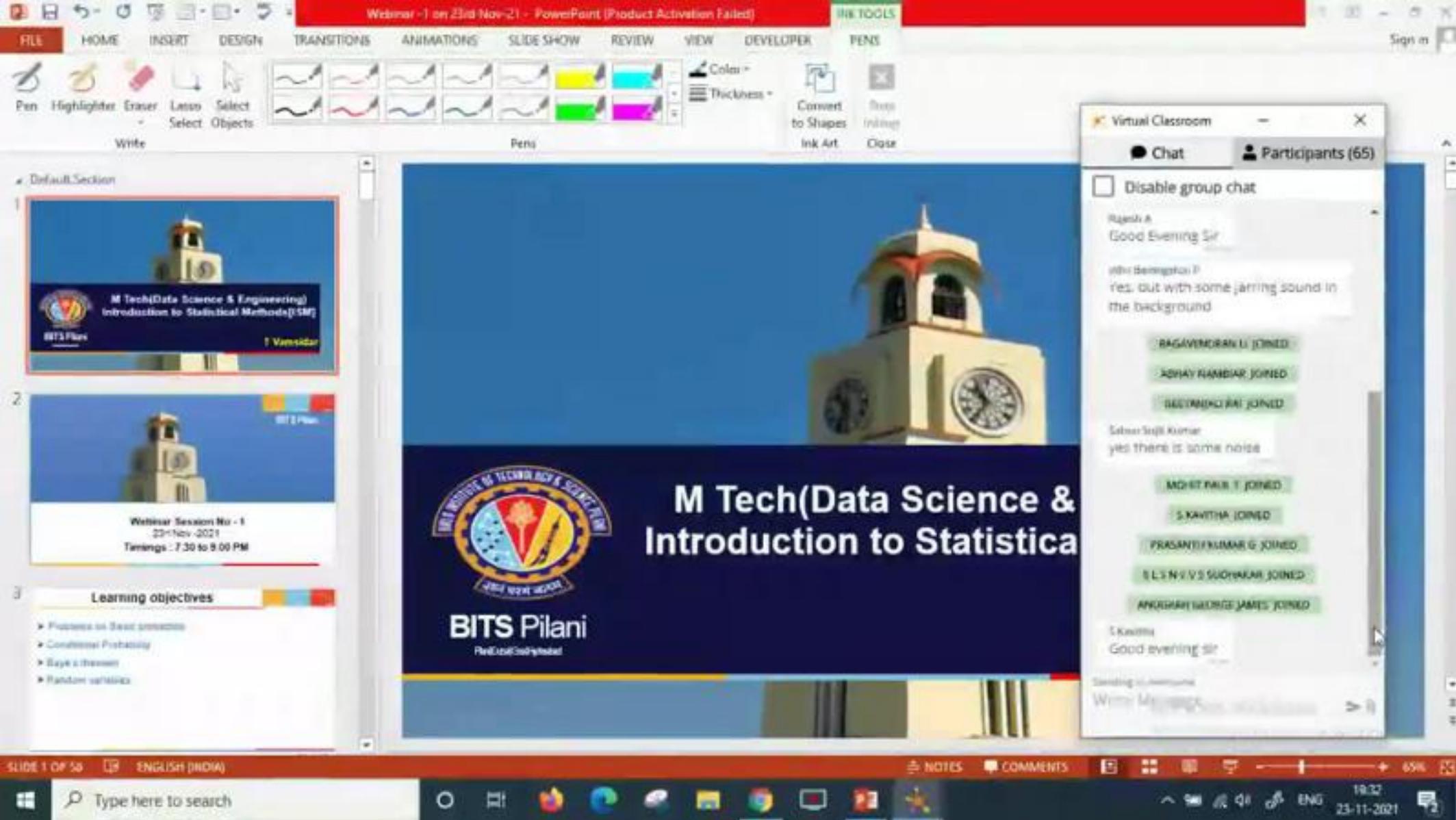


M Tech(Data Science & Introduction to Statistics)



BITS Pilani

- ▶ [Probability](#)
 - ▶ [Basic probability](#)
 - ▶ [Conditional Probability](#)
 - ▶ [Baye's theorem](#)
 - ▶ [Random variables](#)



FILE **HOME** **INSERT** **DESIGN** **TRANSITIONS** **ANIMATIONS** **SLIDE SHOW** **REVIEW** **VIEW** **DEVELOPER** **INK TOOLS**

PENS

Pen Highlighter Eraser Lasso Select Objects Write

Color Thickness Pens Convert to Shapes Ink Art Close

Virtual Classroom Chat Participants (66)

Disable group chat

girishkrishnan P
Very nice with some jingling sound in the background

RAGAVENDRAN U JOINED

ABHAY NAMBOODIRI JOINED

SEETANJALI RAI JOINED

Sahoo Sujit Kumar
yes there is some noise

MONIKA PAUL JOINED

S KAVITHA JOINED

PRASANTH KUMAR G JOINED

S L SIVYASUDHAKAR JOINED

ANURAGA GEORGE JAMES JOINED

S Kavitha
Good evening sir

some background sound like old radio

Sending to everyone
Write Message

SLIDE 1 OF 58 ENGLISH (INDIA) NOTES COMMENTS 19:32 23-11-2021 45%

Type here to search

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER FENS

Pen Highlighter Eraser Lasso Select Objects Write

Color Thickness Pens Convert to Shapes Ink Art Close

Virtual Classroom Chat Participants (71)

Disable group chat

Saiharsha Kalyan yes there is some noise

ASHUTOSH T JOINED

SARATHA JOINED

PRAKASH KUMAR G JOINED

SALINI VIVEK SUDHAKAR JOINED

ANURAG GEORGE JAMES JOINED

K Ravinder Good evening guys

some background sound like old radio

K MOHAMMED RAYADULLAH JOINED

RANI RANDIP JOINED

CHRISU ELIZABETH MATILY JOINED

SHARMISTA BARBERY JOINED

RAJIV VENKATESH G V JOINED

Sending invitation
With Message

SLIDE 1 OF 58 ENGLISH (INDIA) NOTES COMMENTS 19:37 23-11-2021

M Tech(Data Science & Engineering)
Introduction to Statistical Methods(ISM)
BITS Pilani T Venkateswaran

Webinar Session No - 1
23-Nov-2021
Timings : 7.30 to 9.00 PM

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

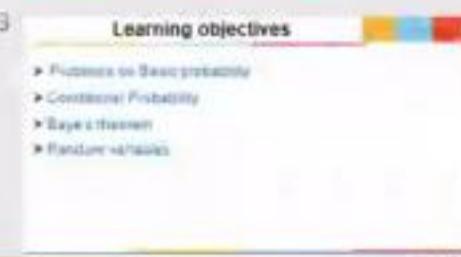
**M Tech(Data Science & Engineering)
Introduction to Statistical Methods(ISM)**

BITS Pilani
RmDataConfPilani





Default Section



M Tech(Data Science & Introduction to Statistica

BITS Pilani
Rethinking Education

Virtual Classroom

Chat Participants (72)

Disable group chat

CAWATHA JOINED

PRASANTH KUMAR G JOINED

SLSHYV VENKHAJOR JOINED

ANUSRAH GEORGE JAMES JOINED

Kavitha
Good evening sir

some background sound like old radio

M MOHAMMED RAHOOZUDDIN JOINED

RABBY NAMIDY JOINED

CHINNU ELIZABETH MATHEW JOINED

SHARMOSTHA DANEERI JOINED

SAGHAVENDRA G V JOINED

Adjusted Status
YES

SHANMAMI P JOINED

Showing 10 messages
Write message

Webinar -I on 23rd Nov-21 - PowerPoint (Product Activation Failed)

FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER PENS

Pen Highlighter Eraser Lens Select Objects Write

Pens Color Thickness Convert to Shapes Ink Art Stay Inside Close

Virtual Classroom Chat Participants (76)

Disable group chat

MOHAMMED IYAZUDDIN JOINED
ERIK SANOF JOINED
JOHNSU ELIZABETH MATHEW JOINED
SHARMOSTHA DAPUREE JOINED
RAJAHAVENOKA R V JOINED

Arjali Sahu:
YES

SHANBHAG P JOINED
SKRISHNAPARDH J JOINED
ROOKAY CHAKRABORTY JOINED
ADRIYA PAIGASALA RAJAKOONDA JOINED

System message:
YES

SINDHU PONDURKAL JOINED

S K Sahu:
YES Sir

Starting communication
Please keep your microphone muted.

SLIDE 1 OF 50 ENGLISH (INDIA) NOTES COMMENTS

Type here to search

19:32 23-11-2021

M Tech(Data Science & Engineering)
Introduction to Statistical Methods(STM)

BITS Pilani T Mavzular

Webinar Session No : 1
23-Nov-2021
Timings : 7.30 to 8.00 PM

Learning objectives

- ▶ Probability and Basic statistics
- ▶ Continuous Probability
- ▶ Bayes's theorem
- ▶ Random variables

INSTITUTE OF TECHNOLOGY & SCIENCE FOR
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BITS Pilani
Pune-Gwalior-Kharagpur

M Tech(Data Science & Engineering)
Introduction to Statistical Methods(STM)

Arjali Sahu:
YES

SHANBHAG P JOINED

SKRISHNAPARDH J JOINED

ROOKAY CHAKRABORTY JOINED

ADRIYA PAIGASALA RAJAKOONDA JOINED

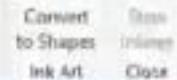
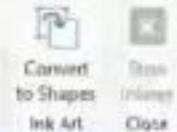
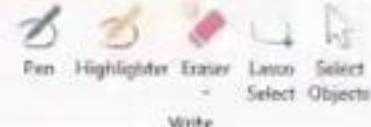
System message:
YES

SINDHU PONDURKAL JOINED

S K Sahu:
YES Sir

Starting communication
Please keep your microphone muted.

19:32 23-11-2021



Virtual Classroom

Chat

Participants (79)

Disable group chat

yes @muralidharan...

YES

GIRISH CHODALAKA JOINED

S.Kumar
yes @R

AMIT M V
yes clear

Arshad Begum
yes

intechneogenia P-
yes, better now

Priyash Kumar
yes better

GADRAV ANAND JOINED

B C Prasad@Kalyan
Clear Sir

CHIRALI VAISHNAVI DATTA@RAJ JOINED

DEEPMALA PANTHAPUR JOINED

Joining in session
Worm link

**M Tech(Data Science & Engineering)
Introduction to Statistical Methods(ISM)**

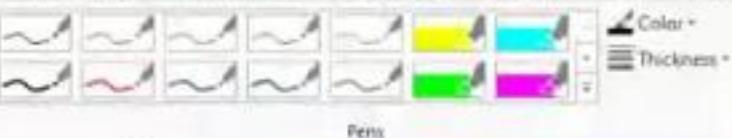
BITS Pilani

**M Tech(Data Science & Engineering)
Introduction to Statistical Methods(ISM)**

**Webinar Session No - 1
23rd Nov - 2021
Timings : 7.30 to 8.00 PM**

Learning objectives

- ▶ Probability vs Basic probability
- ▶ Conditional Probability
- ▶ Baye's theorem
- ▶ Random variables



Default Section

1

M Tech(Data Science & Engineering)
Introduction to Statistical Methods(ISTM)

BITS Pilani T View video

2

Webinar Session No - 1
23-Nov-2021
Timings : 7.30 to 9.00 PM

3

Learning objectives

- ▶ Problems on Basic Probability
- ▶ Conditional Probability
- ▶ Baye's theorem
- ▶ Random variables

M Tech(Data Science & Introduction to Statistical Methods(ISTM))

BITS Pilani
RanDose@Pilani

Virtual Classroom

Chat Participants (80)

Disable group chat GADGRAV KANWAL JOINED

S. Z. Hassanish Khan JOINED

CHILAL VASUDEV DATATRAY JOINED

DEEPMALA PARASURAMAN JOINED

S. BHAGATI JOINED

yashkrishna Rautach YES

Priyank Kumar YES

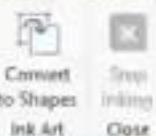
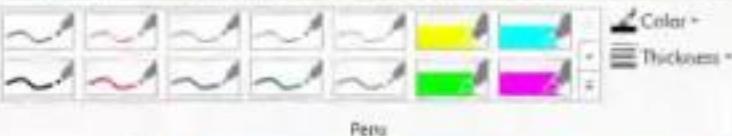
S. RAJENDRA YES

Arijit Saha YES

Jayesh Bhatangar P YES

KANISHKA L YES

Sending to everyone Write: Me on Windows



Virtual Classroom

Chat

Participants (88)

Disable group chat

Kantha C
YES

Yashika Choudhary
YES

Yashika Choudhary
YES

Default Section

1

M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]

BITS Pilani T Vamsidar

2

Webinar Session No - 8
23-Nov-2021
Timings - 7:30 to 8:00 PM

3

Learning objectives

- ▶ Problems on Basic probability
- ▶ Conditional Probability
- ▶ Baye's theorem
- ▶ Random variables

M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]

BITS Pilani
RanDataConfidential

T Vamsidar

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INK TOOLS

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Default Section

1 M Tech(Data Science & Engineering) Introduction to Statistical Methods[ISM] T Vamsidar BITS Pilani

2 Webinar Session No - 1 23-Nov-2021 Timings : 7.30 to 9.00 PM

3 Learning objectives

- Probability vs Basic statistics
- Conditional Probability
- Baye's theorem
- Random variables

BITS Pilani ReDataConf2021

**M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]**

T Vamsidar

Virtual Classroom

Chat Participants (89)

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SALAUDDIN JOINED
DEEPAK KUMAR JOINED
KUMAR PALLAVI JOINED
PESWADA CHHARAKWATTE JOINED
DEEPAK KUMARI AMRA JOINED
F TIRUKANNI JOINED
MR VIJAY KRISHNAN JOINED
DHANSHU R JOINED

Slide 1 of 50 ENGLISH (INDIA) NOTES COMMENTS 19:33 23-11-2021

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FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER INK TOOLS PENS

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Virtual Classroom

Chat Participants (89)

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FEDORAL LYNNAKHARY JUNIOR JOINED

OLIPAK KUMAR KAMRA JOINED

K SHREYAANTI JOINED

M R VIJAY KRISHNAN JOINED

View all participants

Default Section

1

 M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]
BITS Pilani T Vamsidar

2

 Webinar Session No - 1
23rd Nov - 2021
Timings : 7:30 to 9:00 PM

3

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

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M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]

T Vamsidar

SLIDE 1 OF 50 ENGLISH (INDIA) NOTES COMMENTS

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19:33 ENG 23-11-2021

Virtual Classroom

Chat Participants (92)

Disable group chat

KONDRITANU ALEXHIA JOINED
NAVNEET KUMAR JOINED
MOHAMMED AYAL M. JOINED
MANISH SAHUVA JOINED

looking through video thumbnail

1 M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]
BITS Pilani T Vamsidar

2 Webinar Session No - 8
23-Nov-2021
Timings : 7:30 to 9:00 PM

3 Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

FILE TOOLS

PENS

Color Pens Buttons Convert to Shapes Ink Art Close

The slide has a dark blue header bar with the title and a yellow footer bar with navigation icons. The main content area has a dark blue background. At the top right is a large image of a white clock tower against a clear blue sky. To the left of the tower is the circular BITS Pilani logo. Below the logo, the text 'BITS Pilani' is written in white, with 'Ranibbas Deemed to be University' underneath. To the right of the tower, the title 'M Tech(Data Science & Engineering) Introduction to Statistical Methods[ISM]' is displayed in large white font. In the bottom right corner, the name 'T Vamsidar' is written in yellow.

NOTES COMMENTS

SIDE 1 OF 50 ENGLISH (INDIA) 19:33 23-11-2021

Type here to search

Windows Taskbar icons: Start, File Explorer, Firefox, Edge, File Manager, Google Chrome, Powerpoint, and a decorative flower icon.

Virtual Classroom - X

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

Chat Participants (92)

Disable group chat.

HONORU TANUJA ALEKHYA JOINED

RAYNEET KUMAR JOINED

MOHAMMED AFSAL M. JOINED

MANISH GAURAV JOINED

Generating 12 awaiting 10 more

White Messages

2

M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]
BITS Pilani
T Vamsidar

3

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

BITs Pilani
RanDoseGeHited

23-Nov-2021
Timings : 7:30 to 9:00 PM

19:33 23-11-2021 65%

TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER PENS

Color Thickness

Pens

Convert to Shapes Ink Art Stop Recording Close

A photograph of a white clock tower with a red roof and two visible clock faces against a clear blue sky.

**M Tech(Data Science & Engineering)
Introduction to Statistical Methods[ISM]**

T Vamsidar

NOTES COMMENTS

Type here to search

Virtual Classroom - Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed) ? X

Chat Participants (92)

Disable group chat KONDURU TANUJA ALEKHYA JOINED

NAVNEET KUMAR JOINED

MOHAMMED AFSAL M. JOINED

MARCH Gaurav JOINED

Speaking to everyone Write Message > |

M Tech(Data Science & Engineering)
Introduction to Statistical Methods (ISM)
BITS Pilani T Vamsidhar

2

Webinar Session No - 1
23-Nov-2021
Timings : 7.30 to 9.00 PM

3 Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

INK TOOLS TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW DEVELOPER PENS Color Thickness Pens Convert to Shapes Stop Ink Art Close

BITS Pilani

Webinar Session No - 1
23rd Nov -2021
Timings : 7.30 to 9.00 PM

Previous Next

SLIDE 2 OF 58 ENGLISH (INDIA) NOTES COMMENTS

Type here to search

Windows 19:33 ENG 23-11-2021

Virtual Classroom

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

INK TOOLS

Chat Participants (92)

Disable group chat

KONDURU TANUJA ALEKHYA JOINED

NAVNEET KUMAR JOINED

MOHAMMED APSAL M. JOINED

MANSI GURAV JOINED

Sending to everyone

Write Message

Webinar Session No - 8
23/11/2021
Timings : 8:30 to 9:00 PM

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

Slide 3 of 23

NOTES COMMENTS

19:33 23-11-2021

Type here to search

○ 🔍 🌐 🌐 🌐 🌐 🌐 🌐 🌐 🌐 🌐

19:33 23-11-2021

Virtual Classroom

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

INK TOOLS

Chat Participants (92)

Disable group chat

KONDURU TANUJA ALEKHYA JOINED

NAVNEET KUMAR JOINED

MOHAMMED AFSAL M. JOINED

MANISH GAURAV JOINED

Sending 10 messages

Write Message

Webinar Session No. - 1
23-Nov-2021
Timings : 7:30 to 9:00 PM

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's theorem
- Random variables

Problem . 1

If two dice are thrown. What is the probability that the sum is:

greater than 8
 neither 7 nor 11

Slide 3 of 23

SLIDE 3 OF 56 ENGLISH (INDIA) NOTES COMMENTS

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O Bitmoji

19:33 ENG 23-11-2021

Virtual Classroom

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

INK TOOLS

Chat Participants (98)

Disable group chat

DHEERENDRA KUMAR SINGH JOINED

Bhavesh Pandey
random variable are not covered in section 1

Joining audience...
Write Message

Webinar Session No. - 1
23-Nov-2021
Timings : 7:30 to 9:00 PM

Learning objectives

- Problems on Basic probability
- Conditional Probability
- Baye's Theorem
- Random variables

Problem - 1

If two dice are thrown, What is the probability that the sum is

(i) greater than 8
(ii) neither 7 nor 11.

I

Slide 4 of 23

SLIDE 4 OF 50 ENGLISH (INDIA)

NOTES COMMENTS

Type here to search

19:35 23-11-2021

Problem - 1

If two dice are thrown, What is the probability that the

- (i) greater than 8
- (ii) neither 7 nor 11.

The screenshot shows a Microsoft Teams 'Virtual Classroom' window. In the top right corner, there's a 'Chat' tab with a blue dot indicating it's active, and 'Participants (111)' next to it. Below the tabs, there's a checkbox for 'Disable group chat'. The main area shows two messages:

- Pedda Chakravar... 12 (sent at 10:00 AM)
- Gulata Meghans 36 (sent at 10:00 AM)

At the bottom of the message list, there are buttons for 'Send message' and 'Write Message'. A cursor arrow is visible on the right side of the slide.

Solution -1

(i) Let **A** be the event that the sum on the two dice

$$P(A > 8) = P(A = 9) + P(A = 10) + P(A = 11) + P(A = 12)$$

sum is 9 = { (3,6), (6,3), (4,5), (5,4) }

$$P(A = 9) = \frac{\text{Favourable cases for A}}{\text{Exhaustive number of cases}} = \frac{4}{36}$$

sum is 10 = { (4,6), (6,4), (5,5) }

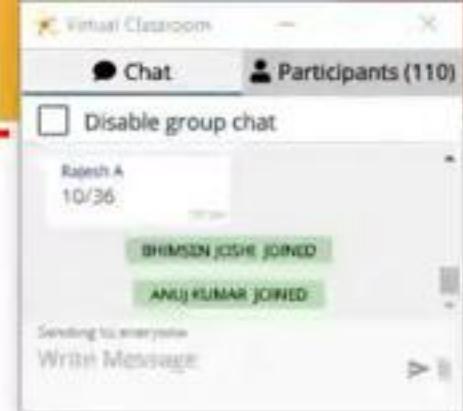
$$P(A = 10) = \frac{\text{Favourable cases for A}}{\text{Exhaustive number of cases}} = \frac{3}{36}$$

sum is 11 = { (5,6), (6,5) }

$$P(A = 11) = \frac{2}{36}$$

sum is 12 = { (6,6) }

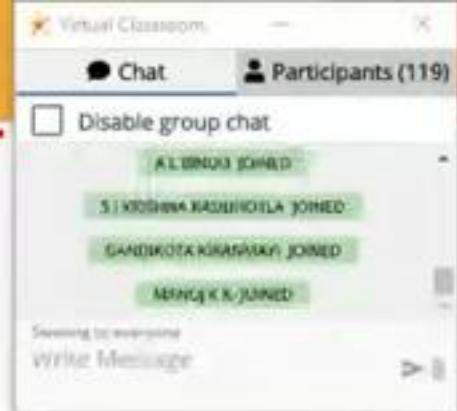
$$P(A) = \frac{1}{36}$$



Activate Windows
Go to Settings to activate Windows.

Solution -1

$$\begin{aligned}P(A > 8) &= P(A = 9) + P(A = 10) + P(A = 11) + P(A = 12) \\&= \frac{4}{36} + \frac{3}{36} + \frac{2}{36} + \frac{1}{36} \\&= \frac{10}{36}\end{aligned}$$



(ii) Let B denote the event of getting the sum is 7

sum is 7 = { (1,6), (6,1), (2,5), (5,2), (3,4), (4,3) }

$$P(B) = \frac{6}{36} = \frac{1}{6}$$

Let C denote the event of getting the sum is 11

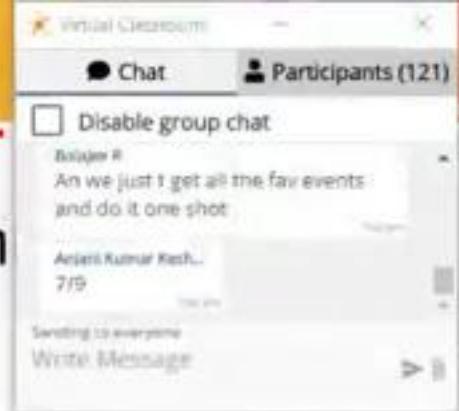
sum is 11 = { (5,6), (6,5) }

$$P(C) = \frac{2}{36}$$

Problem - 1

If two dice are thrown, What is the probability that th

- (i) greater than 8
- (ii) neither 7 nor 11.



Activate Windows
Go to Settings to activate Windows.

Solution -1

$$\begin{aligned}P(A > 8) &= P(A = 9) + P(A = 10) + P(A = 11) + P(A = 12) \\&= \frac{4}{36} + \frac{3}{36} + \frac{2}{36} + \frac{1}{36} \\&= \underline{\underline{\frac{10}{36}}}\end{aligned}$$

(ii) Let B denote the event of getting the sum is 7

sum is 7 = { (1,6), (6,1), (2,5), (5,2), (3,4), (4,3) }

$$P(B) = \frac{6}{36} = \underline{\underline{\frac{1}{6}}}$$

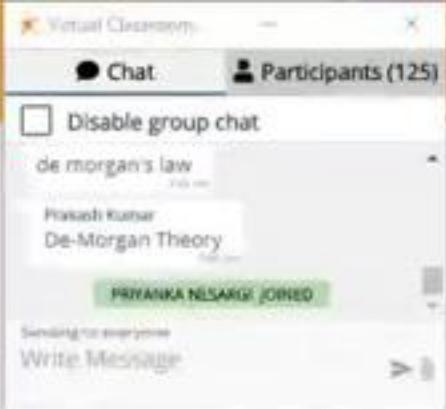
$$\textcircled{U} \quad \cap$$

$$P(B^1 \cap C^c)$$

Let C denote the event of getting the sum is 11

sum is 11 = { (5,6), (6,5) }

$$P(C) = \frac{2}{36}$$



Activate Windows
Go to Settings to activate Windows.

Solution -2



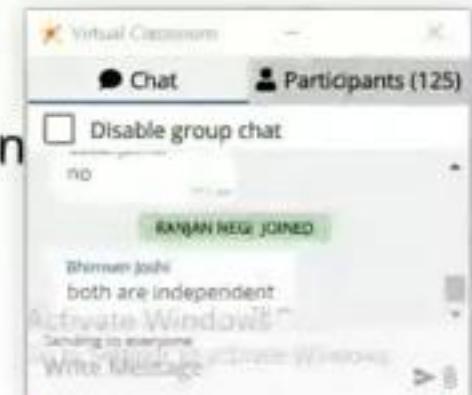
Let A be the event that the next request for assistance from a statistical software consultant relates to the SPSS package.

Let B be the event that the next request is for help with SAS.

$$\underline{P(A) = 0.30} \text{ and } \underline{P(B) = 0.50}$$

i. $P(A') = 1 - P(A)$
= $1 - 0.30$
= **0.70** ✓

ii. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
= $P(A) + P(B) - \{P(A) * P(B)\}$ [A and B are independent]
= $0.3 + 0.5 - [0.3 * 0.5]$
= **0.65**



Solution -2

Innovate

Achieve

Lead

Let A be the event that the next request for assistance from a statistical software consultant relates to the SPSS package.

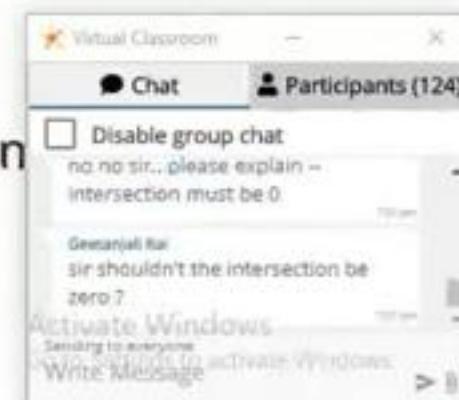
Let B be the event that the next request is for help with SAS.

$$\underline{P(A) = 0.30} \text{ and } \underline{P(B) = 0.50}$$

$$\checkmark P(A \cap B) = P(A) * P(B)$$

$$\begin{aligned}\text{i. } P(A') &= 1 - P(A) \\ &= 1 - 0.30 \\ &= 0.70\end{aligned}$$

$$\begin{aligned}\text{ii. } P(A \cup B) &= P(A) + P(B) - P(A \cap B) \\ &= P(A) + P(B) - \{P(A) * P(B)\} [\text{A and B are independent}] \\ &= 0.3 + 0.5 - [0.3 * 0.5] \\ &= 0.65\end{aligned}$$



Problem - 2

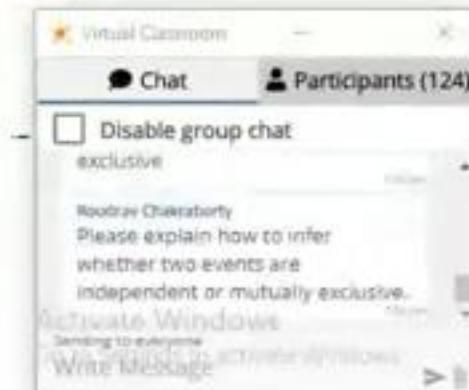
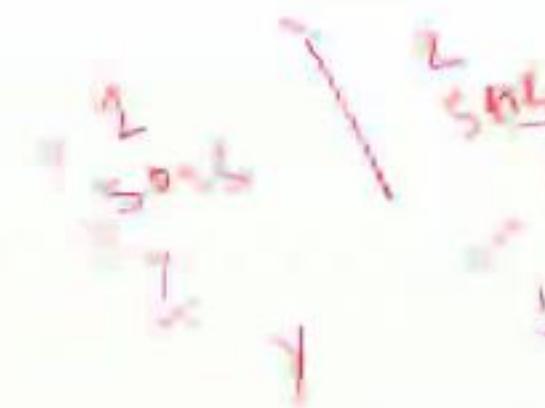
Introducer

Participants

Lead

Let A denote the event that the next request for assistance from a statistical software consultant relates to the SPSS package, and let B be the event that the next request is for help with SAS. Suppose that $P(A) = 0.30$ and $P(B) = 0.50$.

- Calculate $P(A')$.
- Calculate $P(A \cup B)$.
- Calculate $P(A' \cap B')$.



Solution -3



Let **A** be the event that he must stop at the first signal

Let **B** be the event that he must stop at the second signal

$$P(A) = 0.40 \text{ and } P(B) = 0.50$$

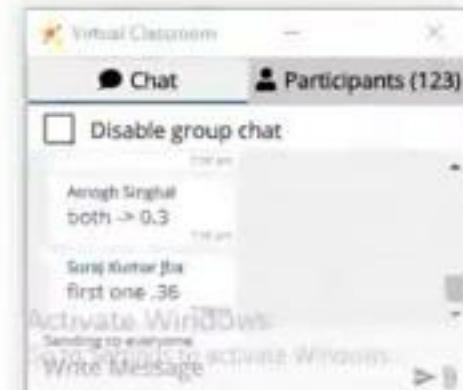
And given that

$$P(A \cup B) = 0.6$$

$$\begin{aligned} i. \quad P(A \cap B) &= P(A) + P(B) - P(A \cup B) \\ &= 0.4 + 0.5 - 0.6 = 0.3 \end{aligned}$$

$$\begin{aligned} ii. \quad P(A \cap B') &= P(A) - P(A \cap B) \\ &= 0.4 - 0.3 = 0.1 \end{aligned}$$

$$\begin{aligned} iii. \quad P(\text{At exactly one signal}) &= P(A \cup B) - P(A \cap B) \\ &= 0.6 - 0.3 = 0.3 \end{aligned}$$



Solution -3

Let A be the event that he must stop at signal A

Let B be the event that he must stop at signal B

$$P(A) = 0.40 \text{ and } P(B) = 0.50$$

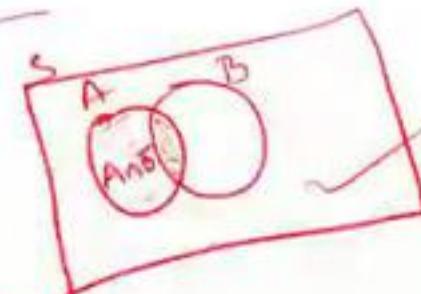
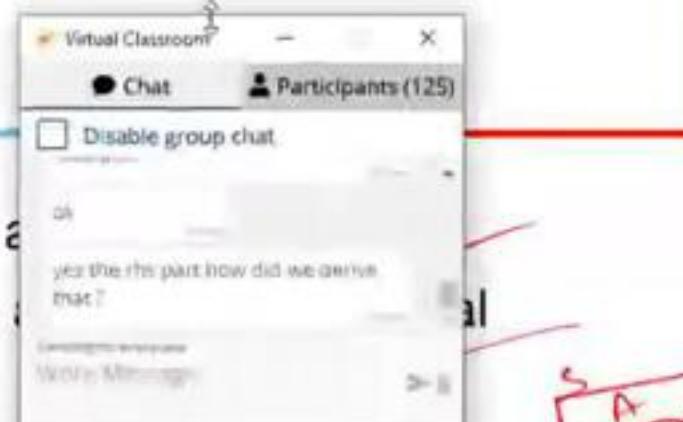
And given that

$$P(A \cup B) = 0.6$$

$$\begin{aligned} i. \quad P(A \cap B) &= P(A) + P(B) - P(A \cup B) \\ &= 0.4 + 0.5 - 0.6 = 0.3 \end{aligned}$$

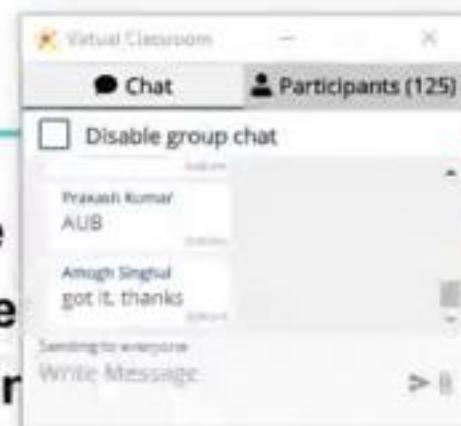
$$\begin{aligned} ii. \quad P(A \cap B') &= P(A) - P(A \cap B) \\ &= 0.4 - 0.3 = 0.1 \end{aligned} \rightarrow \begin{aligned} &P\{(A \cap B) \cup (A \cap B')\} \\ &= P(A \cap B) + P(A \cap B') \end{aligned}$$

$$\begin{aligned} iii. \quad P(\text{At exactly one signal}) &= P(A \cup B) - P(A \cap B) \\ &= 0.6 - 0.3 = 0.3 \end{aligned}$$



Problem - 4

The odds that person X speaks the truth are 5:3. In what proportion are they likely to contradict each other on an identical point?



The odds that person Y speaks the truth are 5:3. In what proportion are they likely to contradict each other on an identical point?

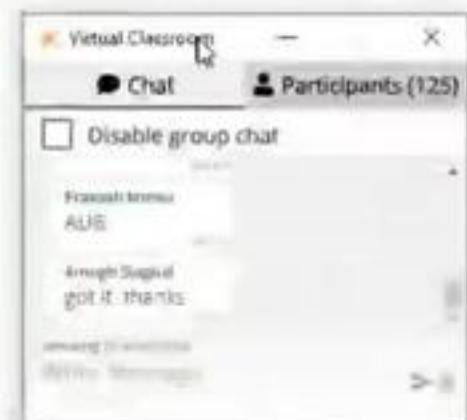
Problem - 4

Learn

achieve

lead

The odds that person X speaks the truth are 3:2 and the odds that person Y speaks the truth are 5:3. In what percentage of cases are they likely to contradict each on an identical point?



Activate Windows
Go to Settings to activate Windows.

Solution -4

Let $A = X$ speaks the truth

$\bar{A} = X$ tell a lie

Let $B = Y$ speaks the truth

$\bar{B} = Y$ tell a lie

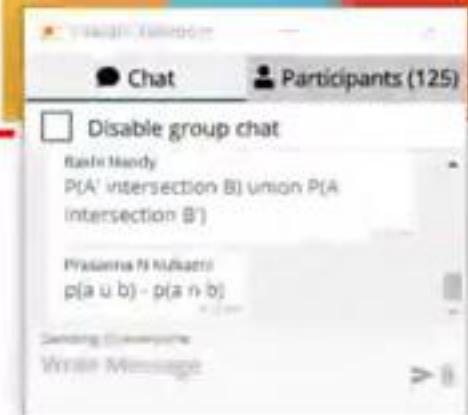
$$P(A) = \frac{3}{3+2}; P(\bar{A}) = \frac{2}{3+2}$$

$$P(B) = \frac{5}{5+3}; P(\bar{B}) = \frac{3}{5+3}$$

The event C that X and Y contradict each other on an-identical point.

That can happen in two ways

- (i) X speaks the truth and Y tell a lie, i.e., $A \cap \bar{B}$
- (ii) X tell a lie and Y speaks the truth, i.e., $\bar{A} \cap B$



Solution -4

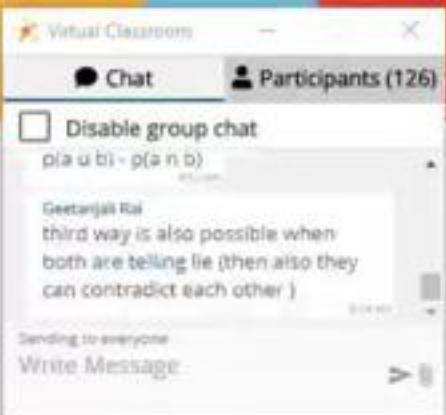
the events $(A \cap \bar{B})$ and $(\bar{A} \cap B)$ mutually exclusive events

$$\begin{aligned}P(C) &= P(A \cap \bar{B}) + P(\bar{A} \cap B) \\&= P(A) \cdot P(\bar{B}) + P(\bar{A}) \cdot P(B)\end{aligned}$$

[A and B are independent events]

$$\begin{aligned}&= \frac{3}{5} \cdot \frac{3}{8} + \frac{2}{5} \cdot \frac{5}{8} \\&= 0.475\end{aligned}$$

47.5 % of cases are they likely to contradict each other on an identical point.

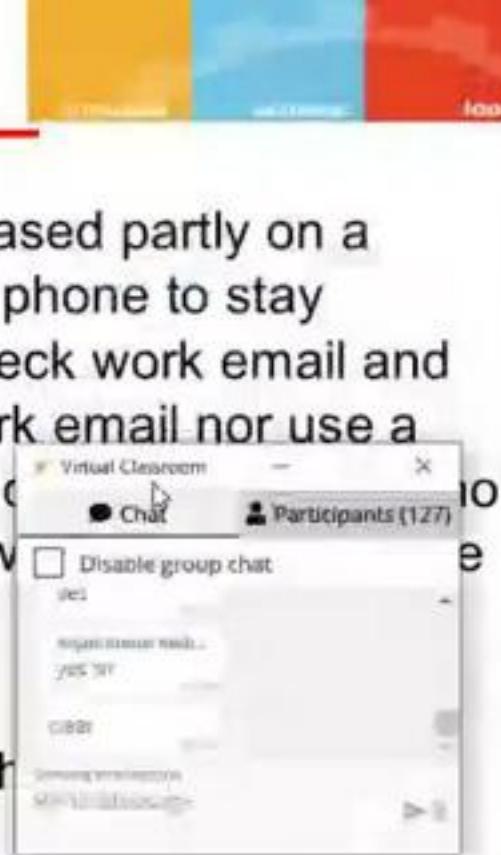


Activate Windows
Go to Settings to activate Windows.

Problem - 5

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88%** of those who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?



Activate Windows
Go to setup Windows Home

Problem - 5

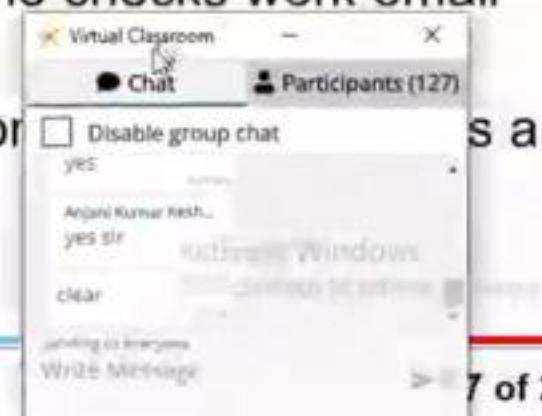
Answers

Explanations

Lead

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop or uses a cell phone to stay connected?



Problem - 5

Introduce

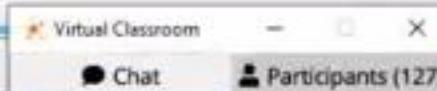
Activities

Lead

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

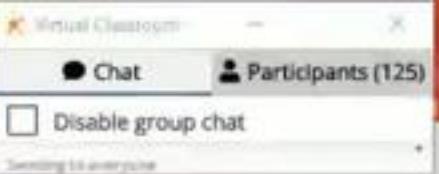
Activate Windows
Go to Settings to activate Windows.



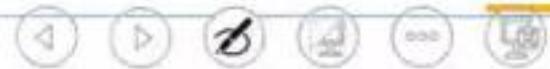
Problem - 5

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

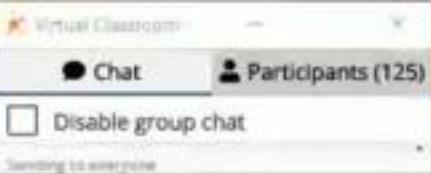
- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?



Activate Windows
Go to Settings to activate Windows



Solution - 5



Let $A_E = \{\text{Check work mail}\}$

Let $A_c = \{\text{use a cellphone to stay connected to work}\}$

Let $A_l = \{\text{bring a laptop}\}$

We are given the following probabilities

$$P(A_E) = 0.4$$

$$P(A_c) = 0.3 \text{ and } P(A_l) = 0.25$$

$$P(A_E \cap A_c) = 0.23$$

$$P(A'_E \cap A'_c \cap A'_l) = 0.51$$

$$P\left(\frac{A_E}{A_l}\right) = 0.88$$

$$P\left(\frac{A_l}{A_c}\right) = 0.7$$

Problem - 5

Consider the following information about travellers on vacation (base recent Travelocity poll): **40%** check work email, **30%** use a cell phone connected to work, **25%** bring a laptop with them, **23%** both check email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

Problem - 5

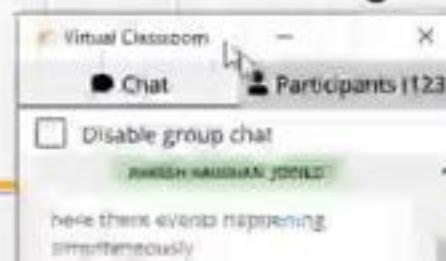
Answers

Exercises

Lead

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?



Activate Windows
Go to Settings to activate Windows

Solution - 5



Let $A_E = \{\text{Check work mail}\}$ ✓

Let $A_c = \{\text{use a cellphone to stay connected to work}\}$

Let $A_l = \{\text{bring a laptop}\}$ ✓

We are given the following probabilities

$$P(A_E) = 0.4$$

$$P(A_c) = 0.3 \text{ and } P(A_l) = 0.25$$

$$P(A_E \cap A_c) = 0.23$$

$$P(A'_E \cap A'_c \cap A'_l) = 0.51$$

$$P(A_E / A_l) = 0.88$$

$$P(A_l / A_c) = 0.7$$

Problem - 5

innovate

sustained

lead

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): **40%** check work email, **30%** use a cell phone to stay connected to work, **25%** bring a laptop with them, **23%** both check work email and use a cell phone to stay connected, and **51%** neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, **88** out of every 100 who bring a laptop also check work email, and **70** out of every 100 who use a cell phone to stay connected also bring a laptop.

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

Activate Windows
Go to Settings to activate Windows.



innovate

achieve

lead

Activate Windows
Go to Settings to activate Windows.



Problem - 5

introduction

solutions

lead

Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): 40% check work email, 30% use a cell phone to stay connected to work, 25% bring a laptop with them, 23% both check work email and use a cell phone to stay connected, and 51% neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, 88 out of every 100 who bring a laptop also check work email, and 70 out of every 100 who use a cell phone to stay connected also bring a laptop.

$$P(A_e \cap A_c \cap A_l^c) = 0.51$$

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

Activate Windows
Go to Settings to activate Windows.

Solution - 5



Let $A_E = \{\text{Check work mail}\}$ ✓

Let $A_c = \{\text{use a cellphone to stay connected to work}\}$

Let $A_l = \{\text{bring a laptop}\}$ ✓

We are given the following probabilities

$$P(A_E) = 0.4$$

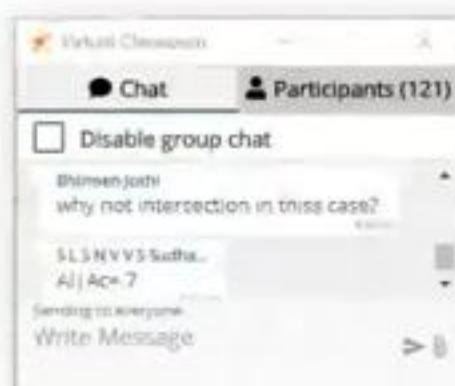
$$P(A_c) = 0.3 \text{ and } P(A_l) = 0.25$$

$$P(A_E \cap A_c) = 0.23$$

$$P(A'_E \cap A'_c \cap A'_l) = 0.51$$

$$P(A_E / A_l) = 0.88$$

$$P(A_l / A_c) = 0.7$$



Windows
Go to setup to activate Windows.

Problem - 5

introduce

continues

lead

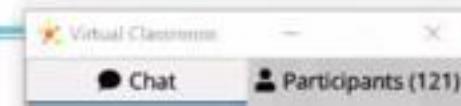
Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): 40% check work email, 30% use a cell phone to stay connected to work, 25% bring a laptop with them, 23% both check work email and use a cell phone to stay connected, and 51% neither check work email nor use a cell phone to stay connected nor bring a laptop. In addition, 88 out of every 100 who bring a laptop also check work email, and 70 out of every 100 who use a cell phone to stay connected also bring a laptop.

$$P(A_e \cap A_c \cap A_l) = 0.51$$

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

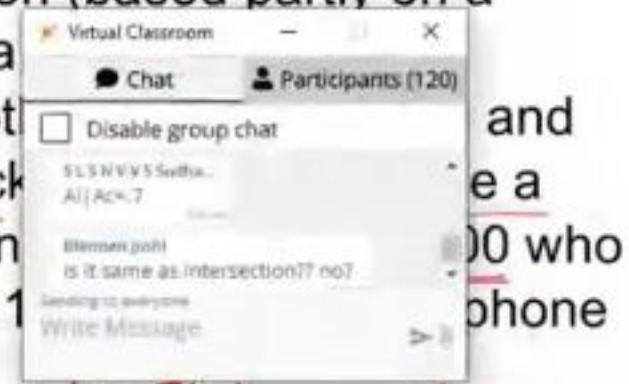
$$P(A_e / A_l) = 0.88$$

Activate Windows
Go to Settings to activate Windows



Problem - 5

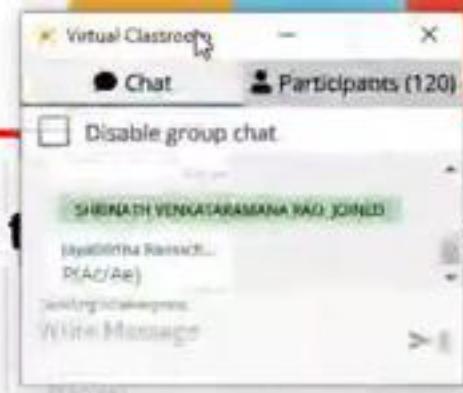
Consider the following information about travellers on vacation (based partly on a recent Travelocity poll): 40% check work email, 30% use a cell phone to stay connected to work, 25% bring a laptop with them, 23% both use a cell phone to stay connected, and 51% neither check work email nor bring a laptop. In addition, 80% of travellers who bring a laptop also check work email, and 70 out of every 100 travellers who use a cell phone to stay connected also bring a laptop.



$$P(A_E \cap A_C \cap A_L) = 0.51$$

- What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?
- What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

$$P(A_E / A_L) = 0.88$$



- a. We need to find the probability that a randomly selected individual work email also uses a cell phone to stay connected.
Which is a conditional probability of A_c given A_E i.e,

$$P(A_c/A_E) = \frac{P(A_c \cap A_E)}{A_E}$$
$$= \frac{0.23}{0.4} = 0.575$$

Activate Windows
Go to Settings to activate Windows.

Problem - 6

Previous

Next

End

A certain shop repairs both audio and video components. Let A denote the event that the next component brought in for repair is an audio component, and let B be the event that the next component is a compact disc player (so the event B is contained in A). Suppose that $P(A) = 0.6$ and $P(B) = 0.05$.

What is $P(B/A)$?

Solution - 6



Let A denote the event that the next component brought in for repair is an audio component

and

Let B be the event that the next component is a compact disc player

$$P(A) = 0.6 \text{ and } P(B) = 0.05$$

and given that $B \subseteq A$

From sets operations $A \cap B = B$

$$\text{then } P(A \cap B) = P(B) = 0.05$$

$$P(B/A) = \frac{P(A \cap B)}{P(A)} = \frac{0.05}{0.6} = 0.0833$$

Activate Windows
Go to Settings to activate Windows

Solution - 6

Let A denote the event that the next component brought in for component

and

Let B be the event that the next component is a compact disc

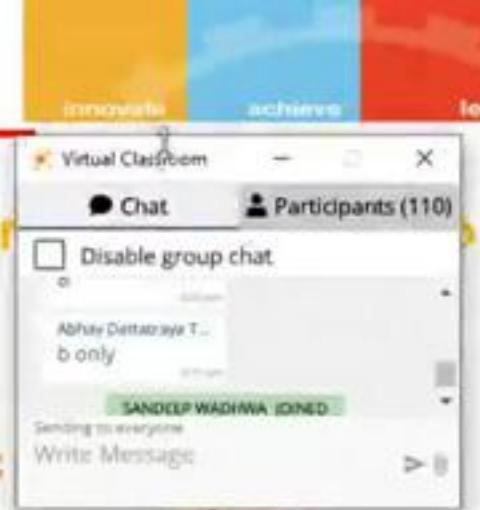
$$\underline{P(A) = 0.6 \text{ and } P(B) = 0.05}$$

and given that $\underline{B \subseteq A}$

From sets operations $A \cap B = B$

$$\text{then } \underline{P(A \cap B) = P(B) = 0.05}$$

$$\underline{P(B/A) = \frac{P(A \cap B)}{P(A)} = \frac{0.05}{0.6} = 0.0833}$$



Activate Windows
Go to Settings to activate Windows.

Solution - 6



Let A denote the event that the next component brought in for repair is an audio component

and

Let B be the event that the next component is a compact disc

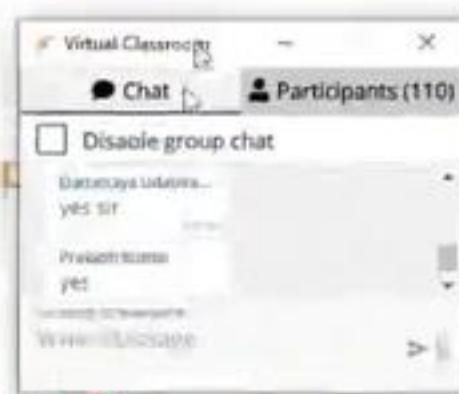
$$\underline{P(A) = 0.6 \text{ and } P(B) = 0.05}$$

and given that $\underline{B \subseteq A}$

From sets operations $\underline{A \cap B = B}$

$$\text{then } \underline{P(A \cap B) = P(B) = 0.05}$$

$$\underline{P(B/A) = \frac{P(A \cap B)}{P(A)} = \frac{0.05}{0.6} = 0.0833}$$



$A \cap B$

Activate Windows
Go to Settings to activate Windows...

Problem - 7



A company that manufactures video camera as produces a basic model and a deluxe model. Over the years 40% of the cameras sold have been the basic model. Of those buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so. What is the probability that a randomly selected customer has an extended warranty, how likely is it that he or she has a basic model?

Activate Windows
Go to Settings to activate Windows

Solution - 7

innovate

achieve

lead

Let B be the event of a basic model.

Let D be the event of a deluxe model.

Let E be event of extended warranty.

$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E / B) = 0.30, \text{ and } P(E / D) = 0.50$$

Problem - 7

dimensions

achievements

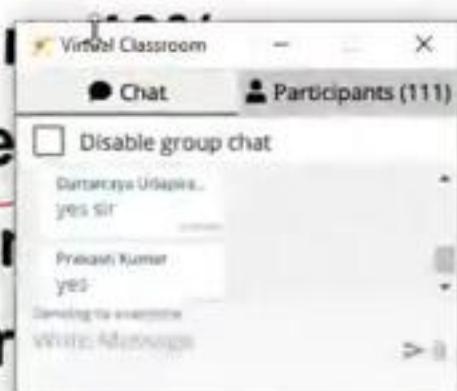
lead

A company that manufactures video camera as produces a basic model and a deluxe model. Over the years 40% of the cameras sold have been the basic model. Of those buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so. What is the probability that a randomly selected customer has an extended warranty, how likely is it that he or she has a basic model?

Activate Windows
Go to Settings to activate Windows

Problem - 7

A company that manufactures video camera as produces a basic model and a deluxe model. Over the years, of the cameras sold have been the basic model, buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers. What is the probability that a randomly selected customer has an extended warranty, how likely is it that he or she has a basic model?



Problem - 7

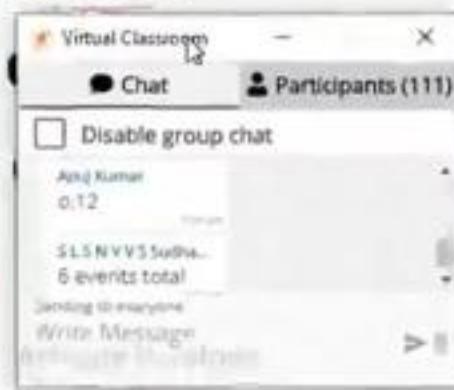


A company that manufactures video camera as produces a basic model and a deluxe model. Over the years 40% of the cameras sold have been the basic model. Of those buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so.

What is the probability that a randomly selected customer has an extended warranty, how likely is it that he bought a basic model?

B

D



Solution - 7

Interactive

Achievement

Lead

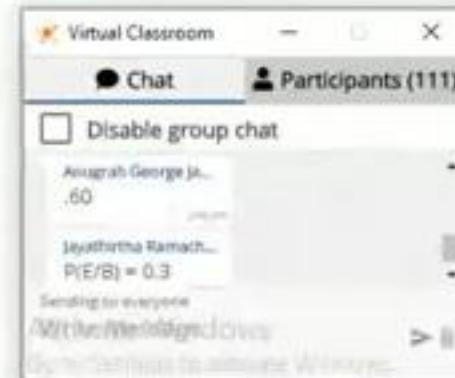
Let B be the event of a basic model.

Let D be the event of a deluxe model.

Let E be event of extended warranty.

$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E / B) = 0.30, \text{ and } P(E / D) = 0.50$$



Problem - 7

Instructions

Activity

Lead

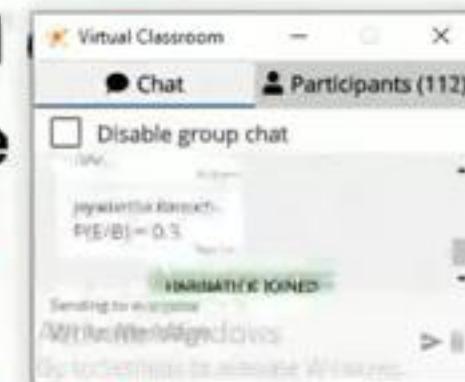
A company that manufactures video camera as produces a basic model and a deluxe model. Over the years 40% of the cameras sold have been the basic model. Of those buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so.

What is the probability that a randomly selected has an extended warranty, how likely is it that he basic model?

B D

$$P(B) = 0.4$$

$$P(D) = 1 - P(B) = 0.6$$



Solution - 7



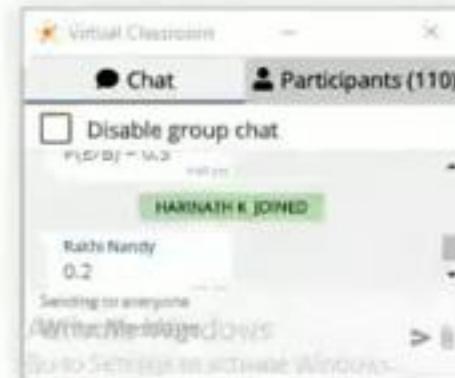
Let B be the event of a basic model.

Let D be the event of a deluxe model.

Let E be event of extended warranty.

$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E / B) = 0.30, \text{ and } P(E / D) = 0.50$$



Problem - 7

Inventor

achieve

lead

A company that manufactures video camera as produces a basic model and a deluxe model. Over the years 40% of the cameras sold have been the basic model. Of those buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so.

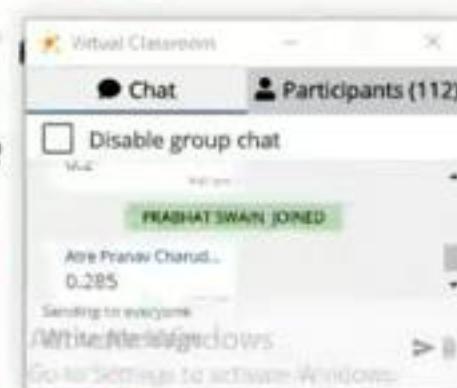
What is the probability that a randomly selected has an extended warranty, how likely is it that he basic model?



B D

$$P(B) = 0.4$$

$$P(D) = 1 - P(B) = 0.6$$



Problem - 7

A company that manufactures video camera basic model and a deluxe model. Over the years of the cameras sold have been the basic model, buying the basic model 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so. What is the probability that a randomly selected customer has an extended warranty, how likely is it that he or she has a basic model?



B D

$$P(B) = 0.4$$

$$P(D) = 1 - P(B) = 0.6$$

Activate Windows
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Problem - 7

A company that manufactures video cameras has two models: a basic model and a deluxe model. Over the years, 60% of the cameras sold have been the basic model. When buying the basic model, 30% purchase an extended warranty, whereas 50% of all deluxe purchasers do so. What is the probability that a randomly selected customer has an extended warranty, how likely is it that he or she has a basic model?



B D

$$P(B) = 0.4$$

$$P(D) = 1 - P(B) = 0.6$$

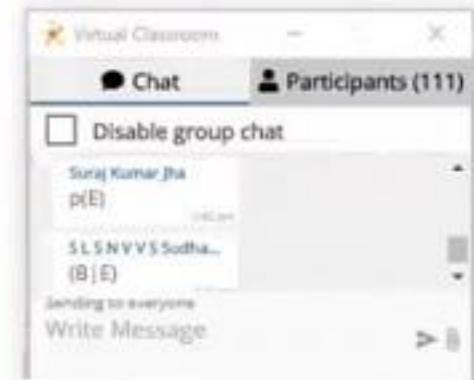
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Solution - 7

Let B be the event of a basic model.

Let D be the event of a deluxe model.

Let E be event of extended warranty.



$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E / B) = 0.30, \text{ and } P(E / D) = 0.50$$

Solution - 7

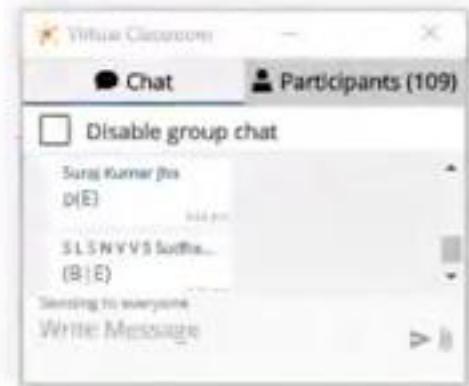
Let B be the event of a basic model.

Let D be the event of a deluxe model.

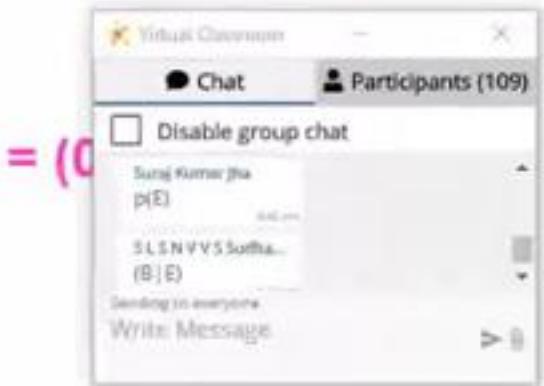
Let E be event of extended warranty.

$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E / B) = 0.30, \text{ and } P(E / D) = 0.50$$



Probability Tree Diagram



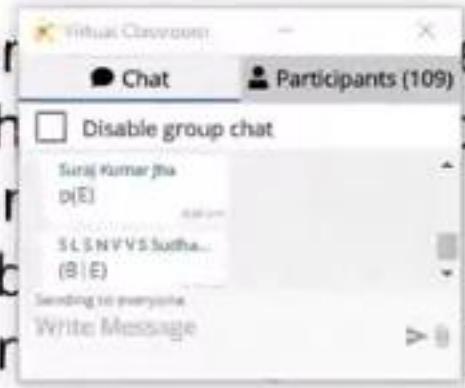
$$P(E/D) = 0.5 \quad P(D) P(E/D) = P(D \cap E) = (0.6)(0.5)$$

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Problem - 8

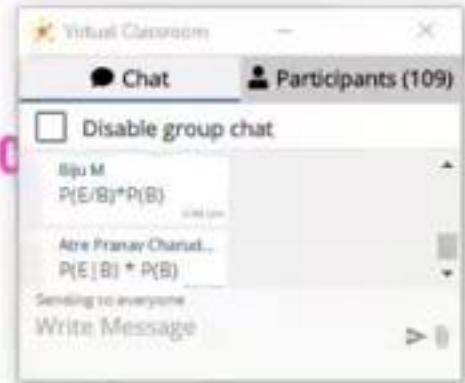
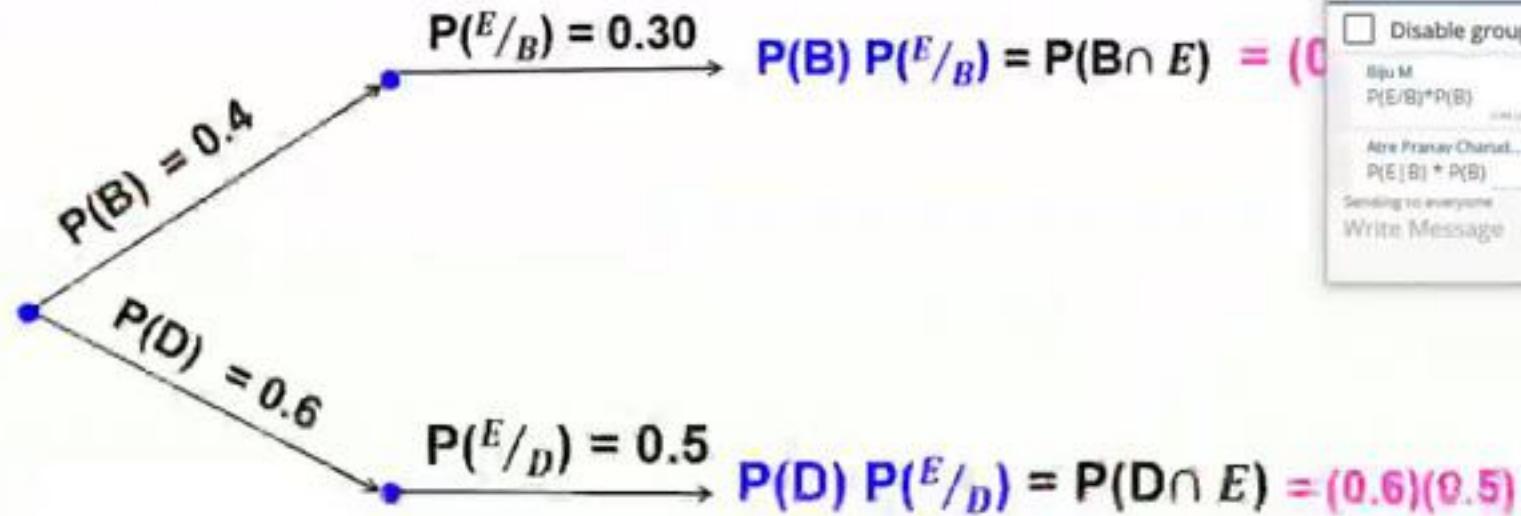


"A company wants to find reasons for the dissatisfaction because of which they are leaving the company. With the feedback among the employees and identified three working conditions, pay hike, commuting. The probabilities of dissatisfaction with these three factors are 0.6, 0.3 and 0.5 respectively. And the probabilities that they are leaving the organization with these reasons are 0.3, 0.5 and 0.8 respectively."



As a data scientist, use an appropriate statistical model / method to model this case and suggest the company the probable reasons on priority so that they can focus on it to retain the employees.

Probability Tree Diagram



$$P(E) = P(B) P(E|B) + P(D) P(E|D) = 0.42$$

Solution - 7

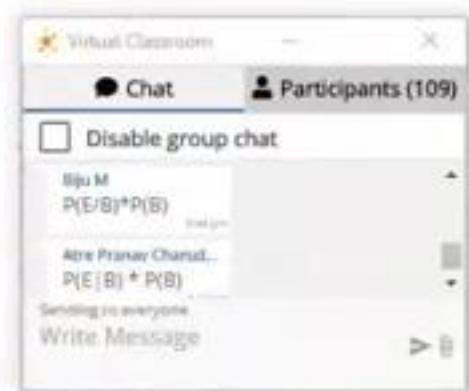
Let B be the event of a basic model.

Let D be the event of a deluxe model.

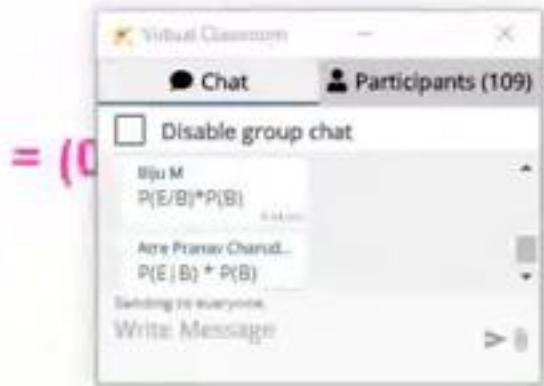
Let E be event of extended warranty.

$$P(B) = 0.40, P(D) = 0.60,$$

$$P(E | B) = 0.30, \text{ and } P(E | D) = 0.50$$



Probability Tree Diagram



$$P(E|D) = 0.5 \quad P(D) P(E|D) = P(D \cap E) = (0.6)(0.5)$$

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Problem - 8

innovate

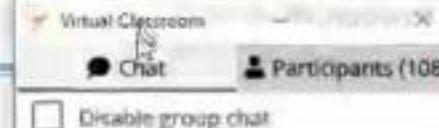
achieve

lead

"A company wants to find reasons for the dissatisfaction among employees because of which they are leaving the company. With this view they took the feedback among the employees and identified three reasons i.e. working conditions, pay hike, commuting. The probabilities of dissatisfaction with these three factors are 0.6, 0.3 and 0.1 respectively. And the probabilities that they are leaving the organization with these reasons are 0.3, 0.5 and 0.8 respectively."

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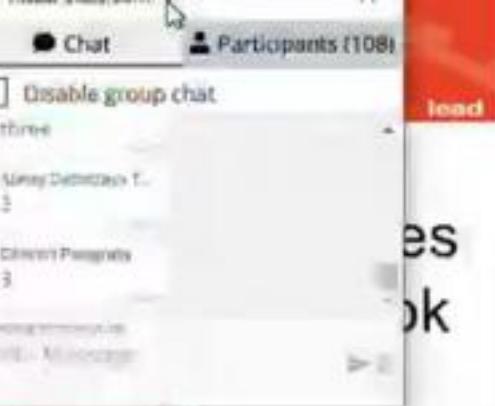
Activate Windows



Problem - 8

"A company wants to find reasons for the dissatisfaction because of which they are leaving the company. With the feedback among the employees and identified three working conditions, pay hike, commuting. The probabilities of dissatisfaction with these three factors are 0.6, 0.3 and 0.1 respectively. And the probabilities that they are leaving the organization with these reasons are 0.3, 0.5 and 0.8 respectively."

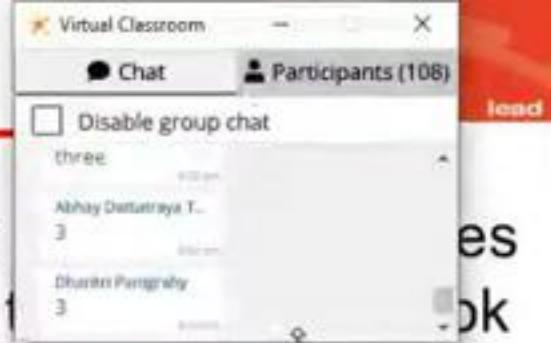
As a data scientist, use an appropriate statistical model / method to model this case and suggest the company the probable reasons on priority so that they can focus on it to retain the employees.



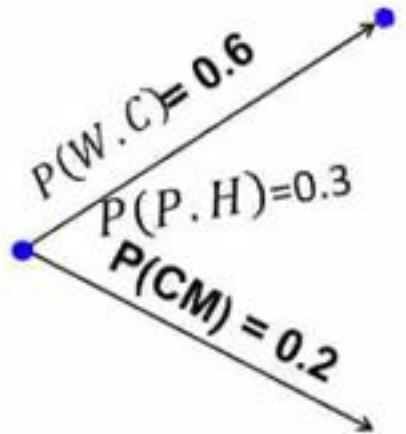
Problem - 8

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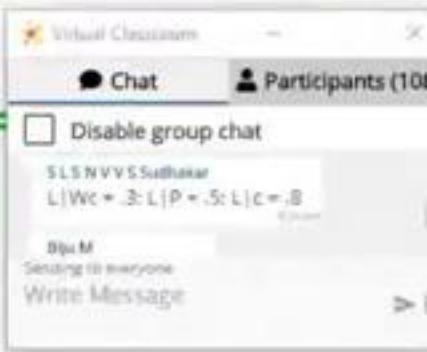


Probability Tree Diagram



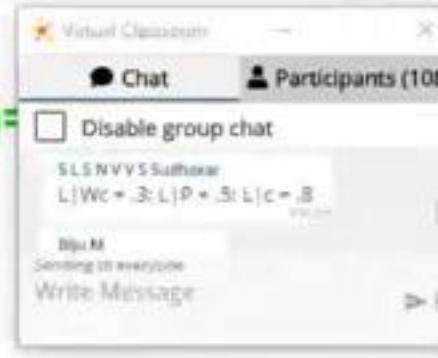
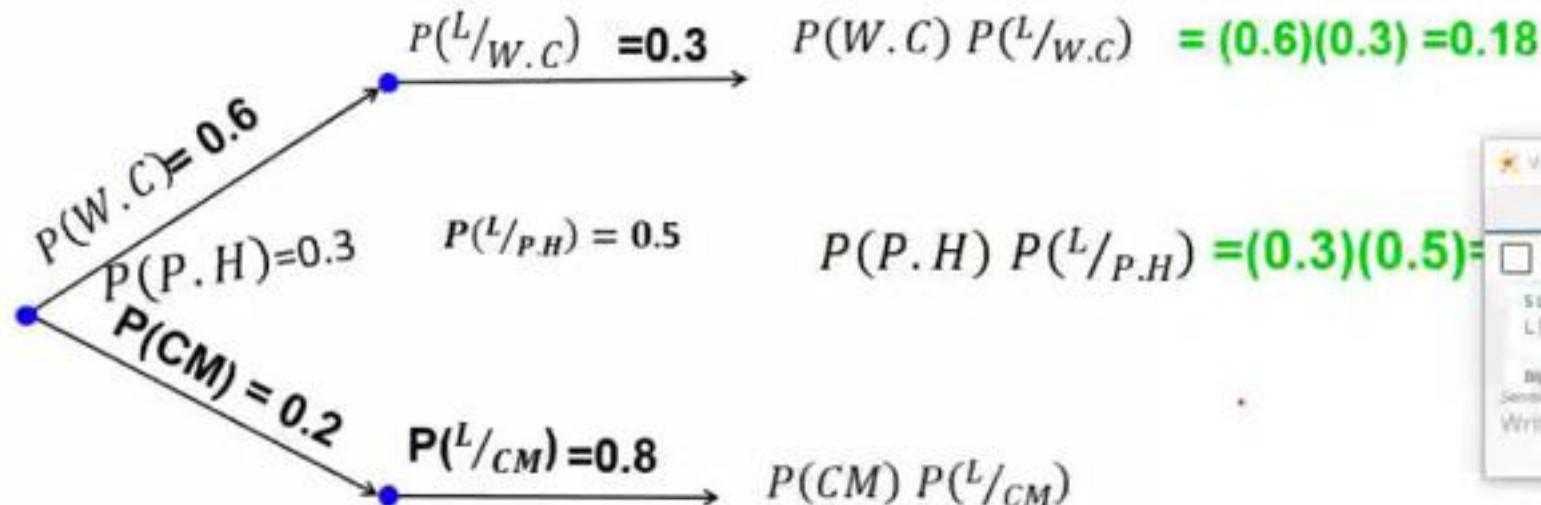
$$P(L/P.H) = 0.5$$

$$P(P.H) \cdot P(L/P.H) = (0.3)(0.5) =$$



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Probability Tree Diagram



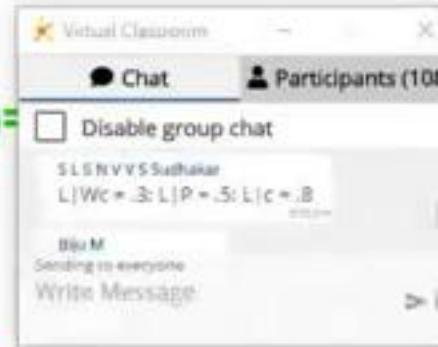
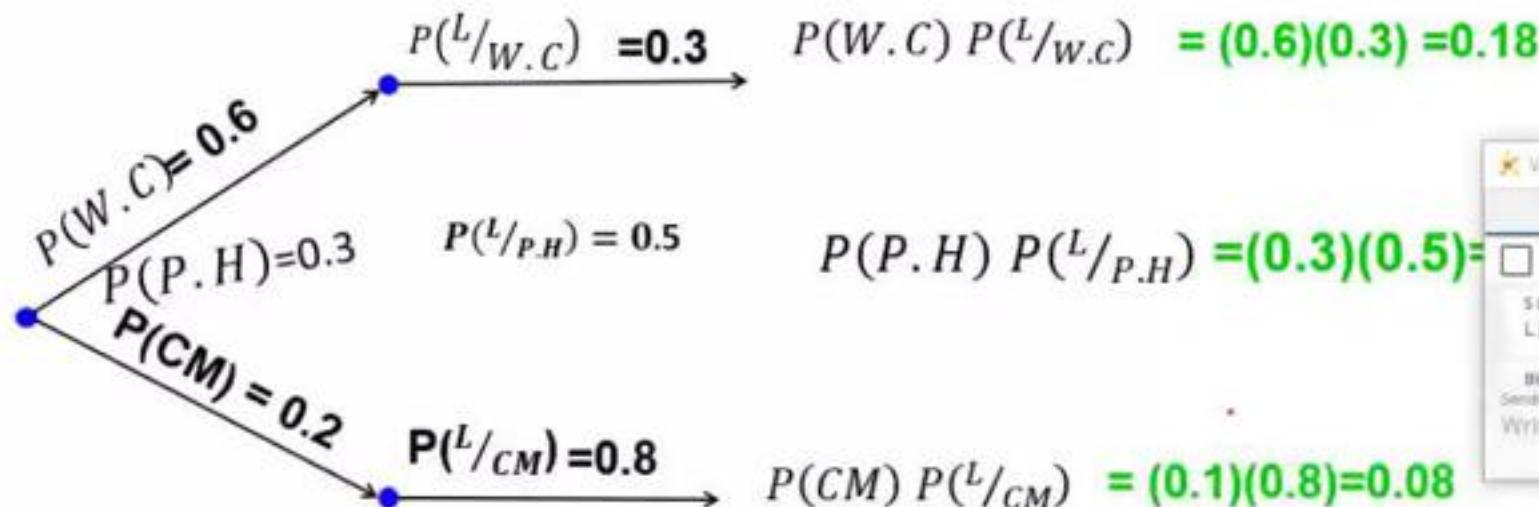
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Probability Tree Diagram

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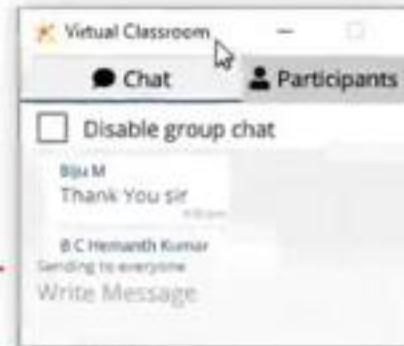
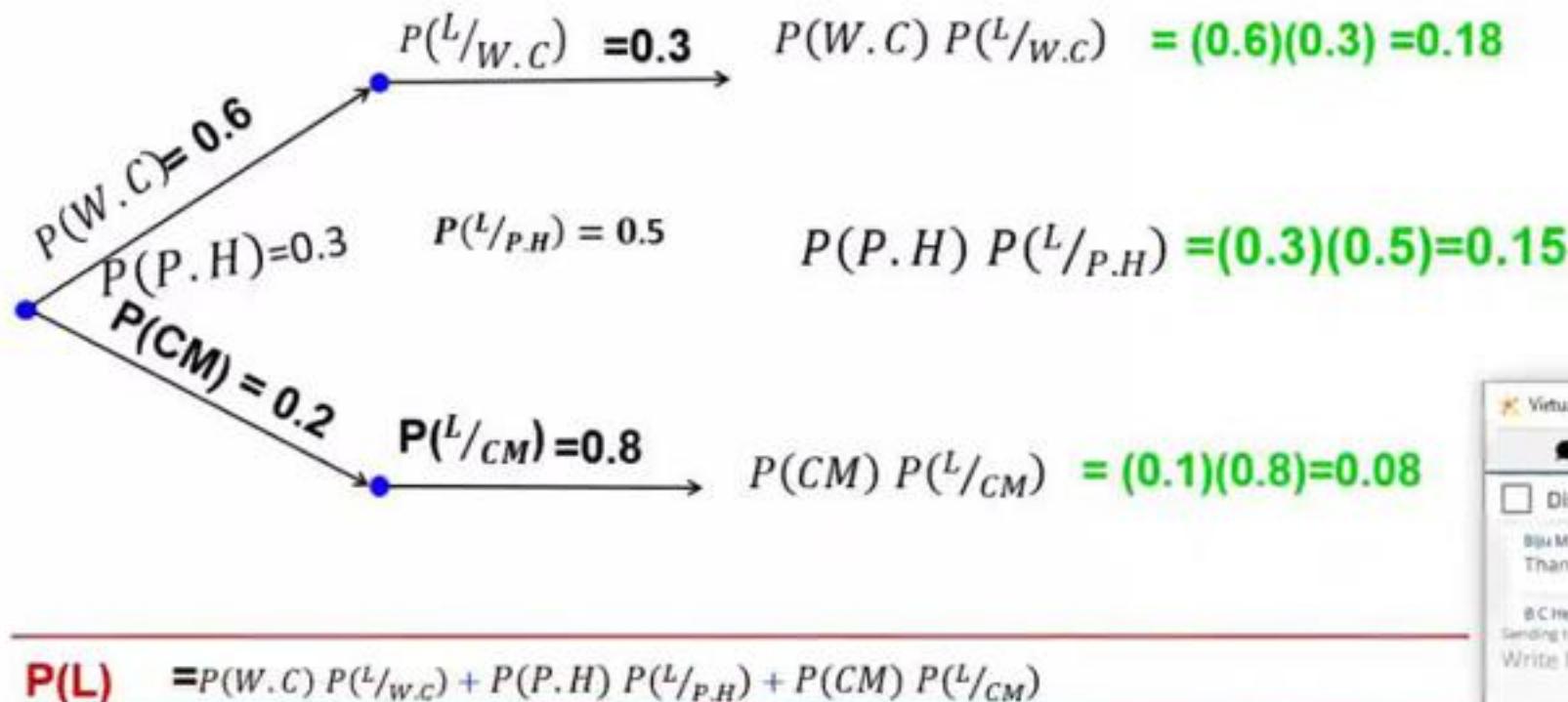
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Probability Tree Diagram

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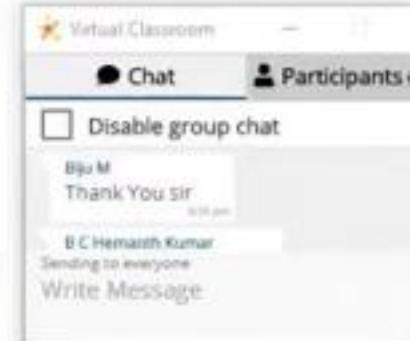
Problem - 9

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lead

The chance that doctor A will diagnose a disease X correctly is 60%. The chance that a patient will die by his treatment after correct diagnose is 40% and the chance of death by wrong diagnose is 70%. A patient of doctor A, who had disease X, died. What is the chance that his disease was correctly.



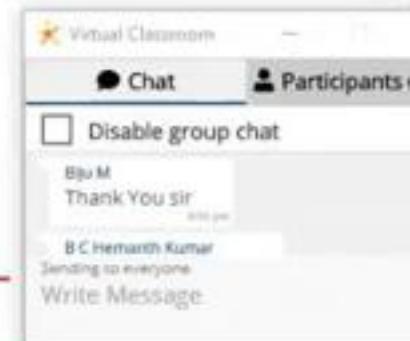
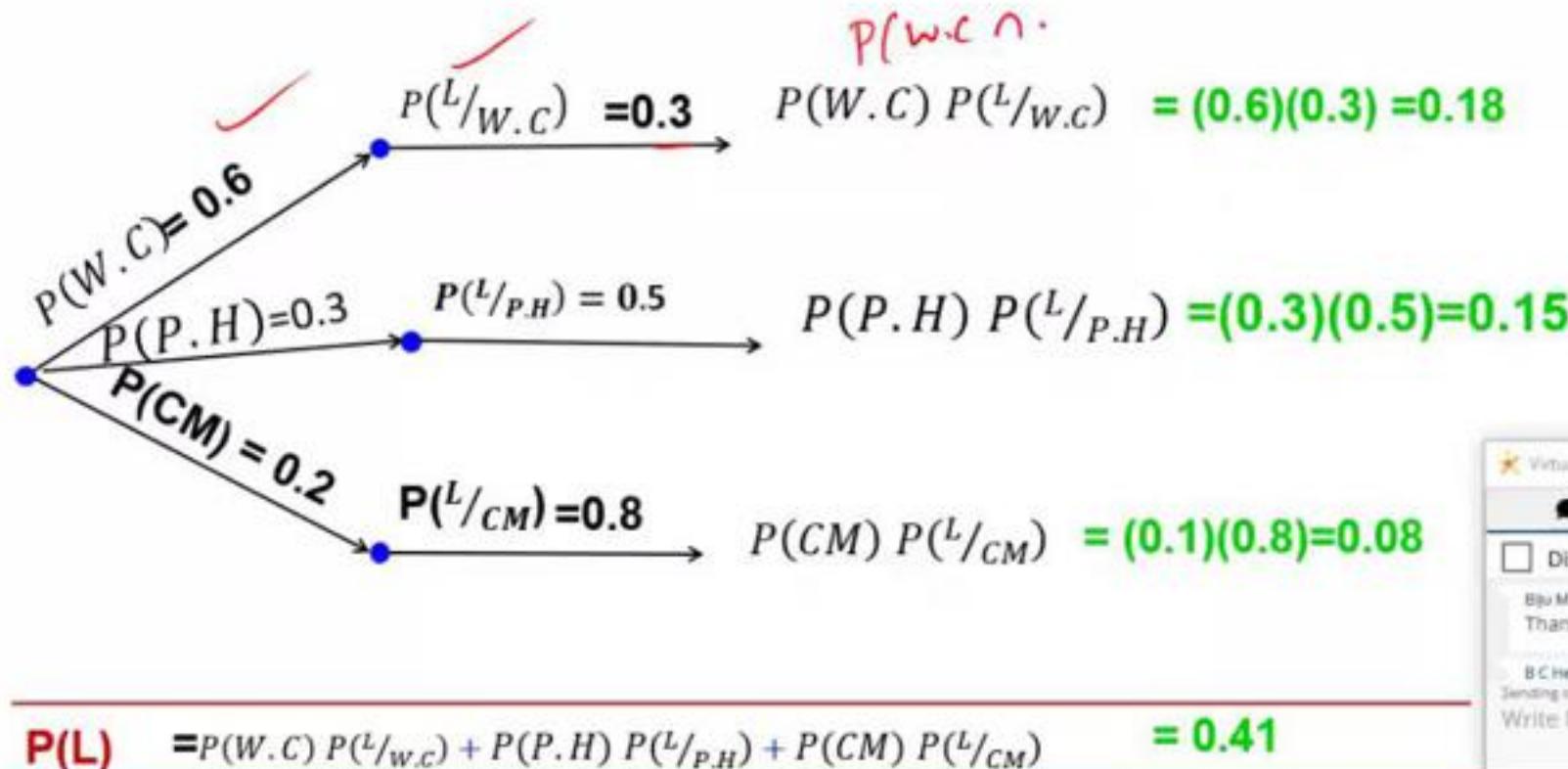
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Probability Tree Diagram

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Problem - 8

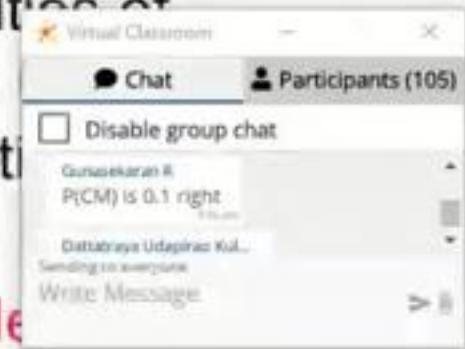
"A company wants to find reasons for the dissatisfaction among employees because of which they are leaving the company. With this view they took the feedback among the employees and identified three reasons i.e. working conditions, pay hike, commuting. The probabilities of dissatisfaction with these three factors are 0.6, 0.3 and 0.1. And the probabilities that they are leaving the organization due to these reasons are 0.3, 0.5and 0.8 respectively."

As a data scientist, use an appropriate statistical model to analyze this case and suggest the company the probable reasons on priority so that they can focus on it to retain the employees.

$$P(W) = 0.6$$

$$P(P.H) = 0.4$$

$$P(C) = 0.1$$



Problem - 8



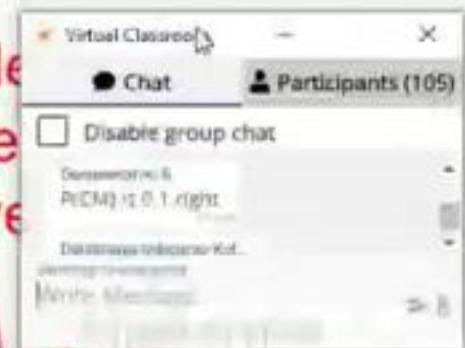
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$$P(W) = 0.6$$

$$P(P.H) = 0.4$$

$$P(C) = 0.1$$



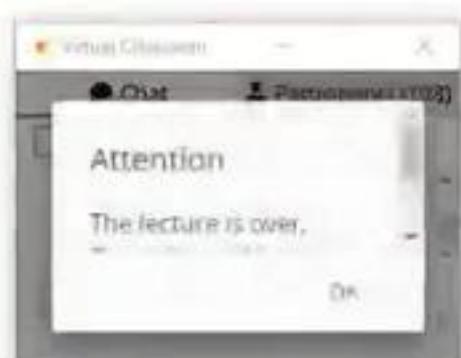
Solution - 8

$$\begin{aligned}P[\text{leaving the company}] &= P[L] = P[(W.C) \cap L] + P[(P.H) \cap L] + P[(CM) \cap L] \\&= P(W.C)P(L/W.C) + P(P.H)P(L/P.H) + P(CM)P(L/CM) \\&= (0.6)(0.3) + (0.3)(0.5) + (0.1)(0.8) \\&= 0.41\end{aligned}$$

P[they are leaving the organization, because of W.C]

$$= P(W.C/L) = \frac{P[(W.C) \cap L]}{P[L]} = \frac{0.18}{0.41} = 0.4390$$

W.C



$$\checkmark P(P.H/L) = \frac{P[(P.H) \cap L]}{P[L]} = \frac{0.15}{0.41} = 0.3658$$

$$\checkmark P(CM/L) = \frac{P[(CM) \cap L]}{P[L]} = \frac{0.08}{0.41} = 0.1951$$

Most of the employees are leaving the organization with the reason working conditions.

Webinar -1 on 23rd Nov-21 - PowerPoint (Product Activation Failed)

FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW DEVELOPER PENS

Pen Highlights Eraser Lasso Select Objects

Wedge

Color Thickness

Converted to Shape Ink Art Close

31 SmartArt

32 Structure II

33 Probability Tree Diagram

Problem - 1

If two dice are thrown, What is the probability that the sum is

- (i) greater than 8
- (ii) neither 7 nor 11.

I

Slide 4 of 23

SIDE 32 OF 96 D:\ENGISH (INDIA)

NOTES COMMENTS

21:00 23-11-2021



31 Solution - 8

P[W.C] = 0.3, P[P.H] = 0.2, P[CM] = 0.1
P[leaving the company] = P[L] = P[(W.C) ∩ L] + P[(P.H) ∩ L] + P[(CM) ∩ L]

P[W.C]P[L/W.C] + P[P.H]P[L/P.H] + P[CM]P[L/CM]

= (0.6)(0.3) + (0.3)(0.5) + (0.1)(0.8)

= 0.41

32 Solution - 8

P[leaving the company] = P[L] = P[(W.C) ∩ L] + P[(P.H) ∩ L] + P[(CM) ∩ L]

P[W.C]P[L/W.C] + P[P.H]P[L/P.H] + P[CM]P[L/CM]

= (0.6)(0.3) + (0.3)(0.5) + (0.1)(0.8)

= 0.41

33 Probability Tree Diagram

Solution - 8

$P[\text{leaving the company}] = P[L] = P[(W.C) \cap L] + P[(P.H) \cap L] + P[(CM) \cap L]$

$= P(W.C)P(L/W.C) + P(P.H)P(L/P.H) + P(CM)P(L/CM)$

$= (0.6)(0.3) + (0.3)(0.5) + (0.1)(0.8)$

$= 0.41$

$P[\text{they are leaving the organization, because of W.C}]$

$$= P(W.C/L) = \frac{P[(W.C) \cap L]}{P[L]} = \frac{0.18}{0.41} = 0.4390$$

✓ $P(P.H/L) = \frac{P[(P.H) \cap L]}{P[L]} = \frac{0.15}{0.41} = 0.3658$ ✓

W.C

$$P(CM/L) = \frac{P[(CM) \cap L]}{P[L]} = \frac{0.08}{0.41} = 0.1951$$

Most of the employees are leaving the organization with the reason working conditions.

