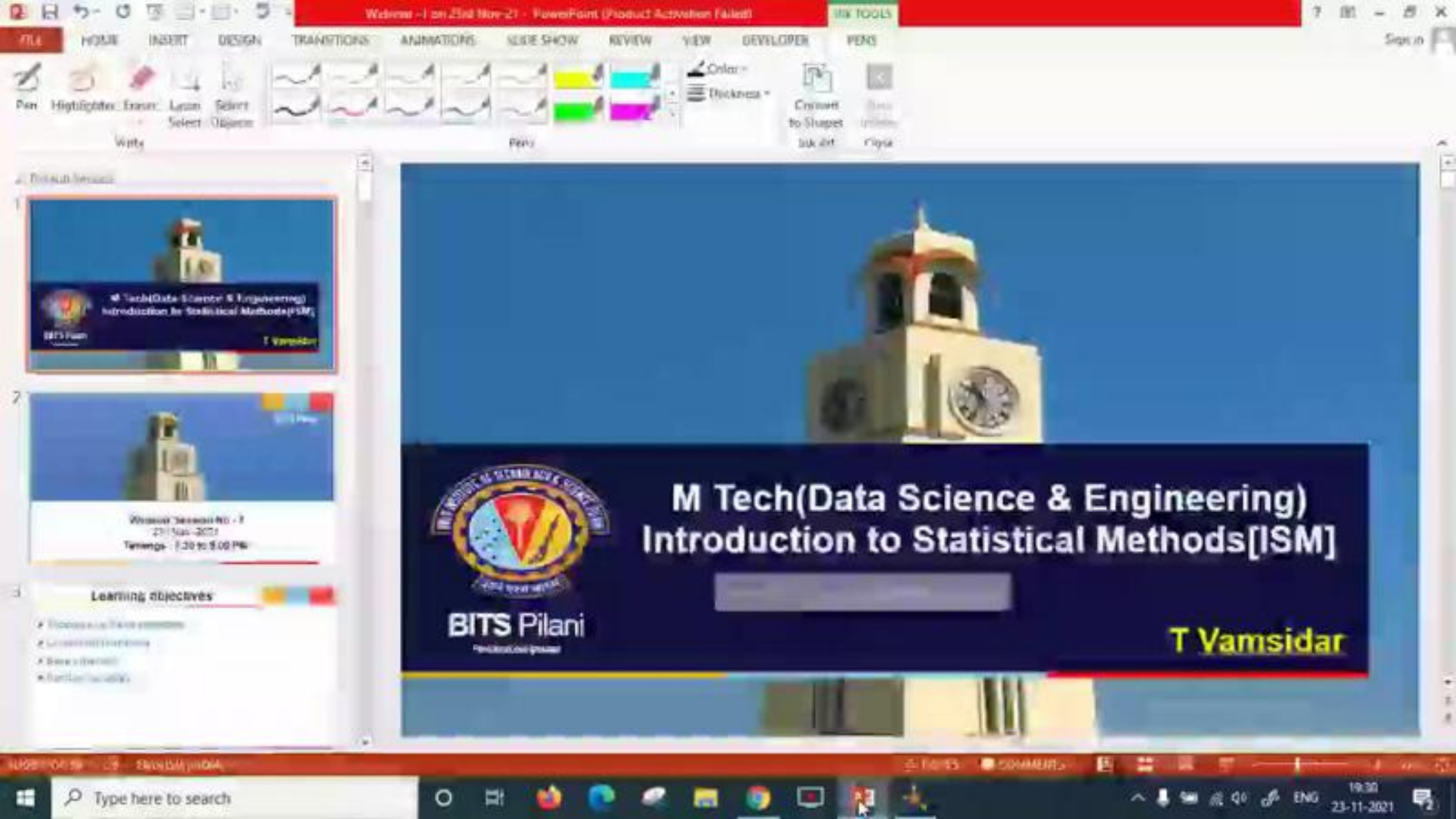
M Tech(Data Science & Engineering)
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Learning objectives
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Virtual Classroom
Chat
Participants (62)
Disable group chat
Ashu
Yes
Kavitha C
yes
Sahoo Sujit Kumar
Good Evening Sir
getting some vibration sound
Rajesh A
Good Evening Sir
Yes, but with some jarring sound in the background
RAGAVENDRAN U JOINED
ABHAY NAMDAK JOINED
GEETANJALI RAI JOINED
Sahoo Sujit Kumar
yes there is some noise
Write Message
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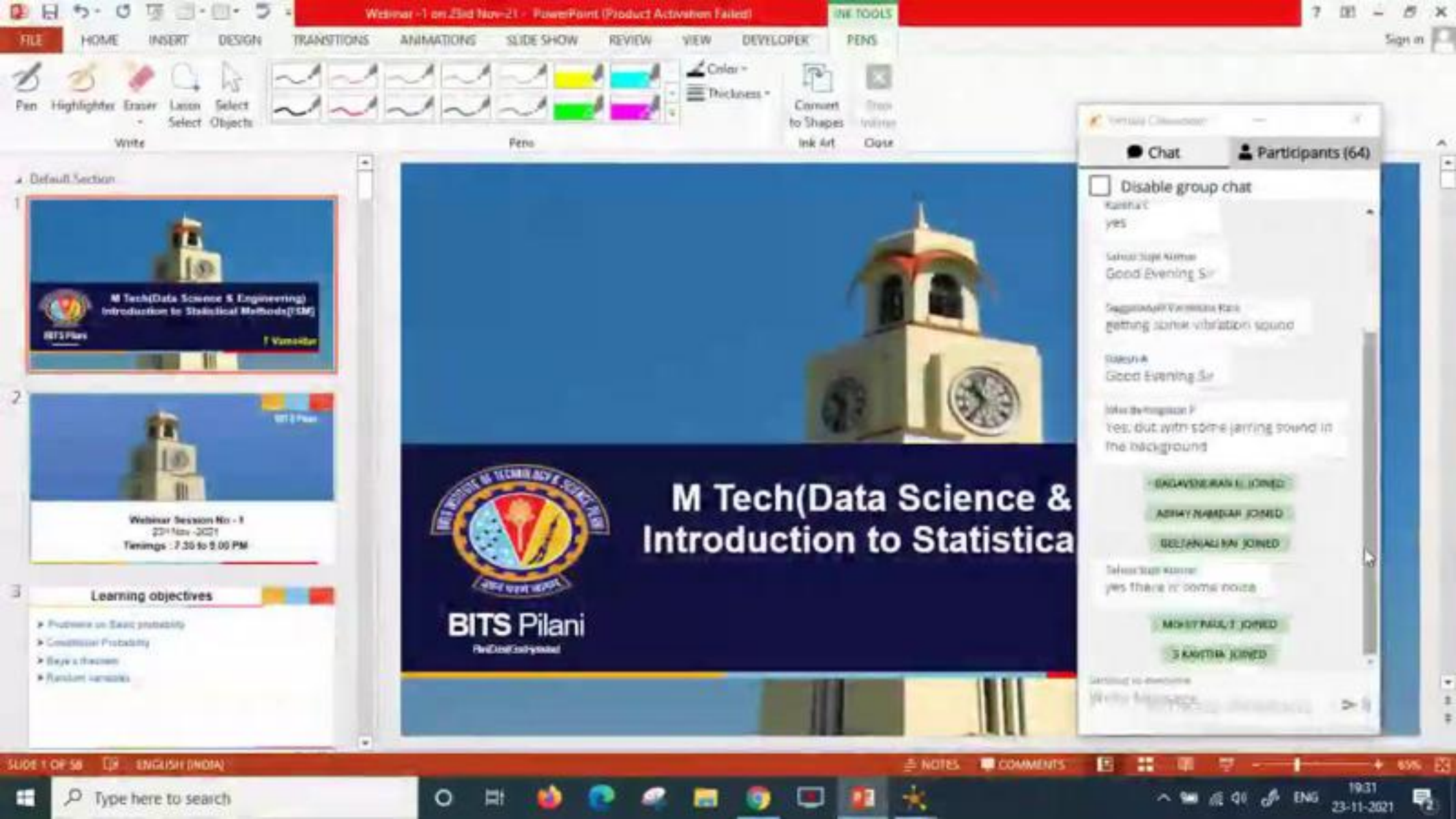
23-11-2021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Webinar Session No - 1
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3
Learning objectives
Problems on Basic probability
Conditional Probability
Baye's theorem
Random variables
M Tech(Data Science &
Introduction to Statistica
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yes
Good Evening Sir
getting some vibration sound
Good Evening Sir
Yes, but with some jarring sound in the background
yes there is some noise
SLIDE 1 OF 58
ENGLISH (INDIA)
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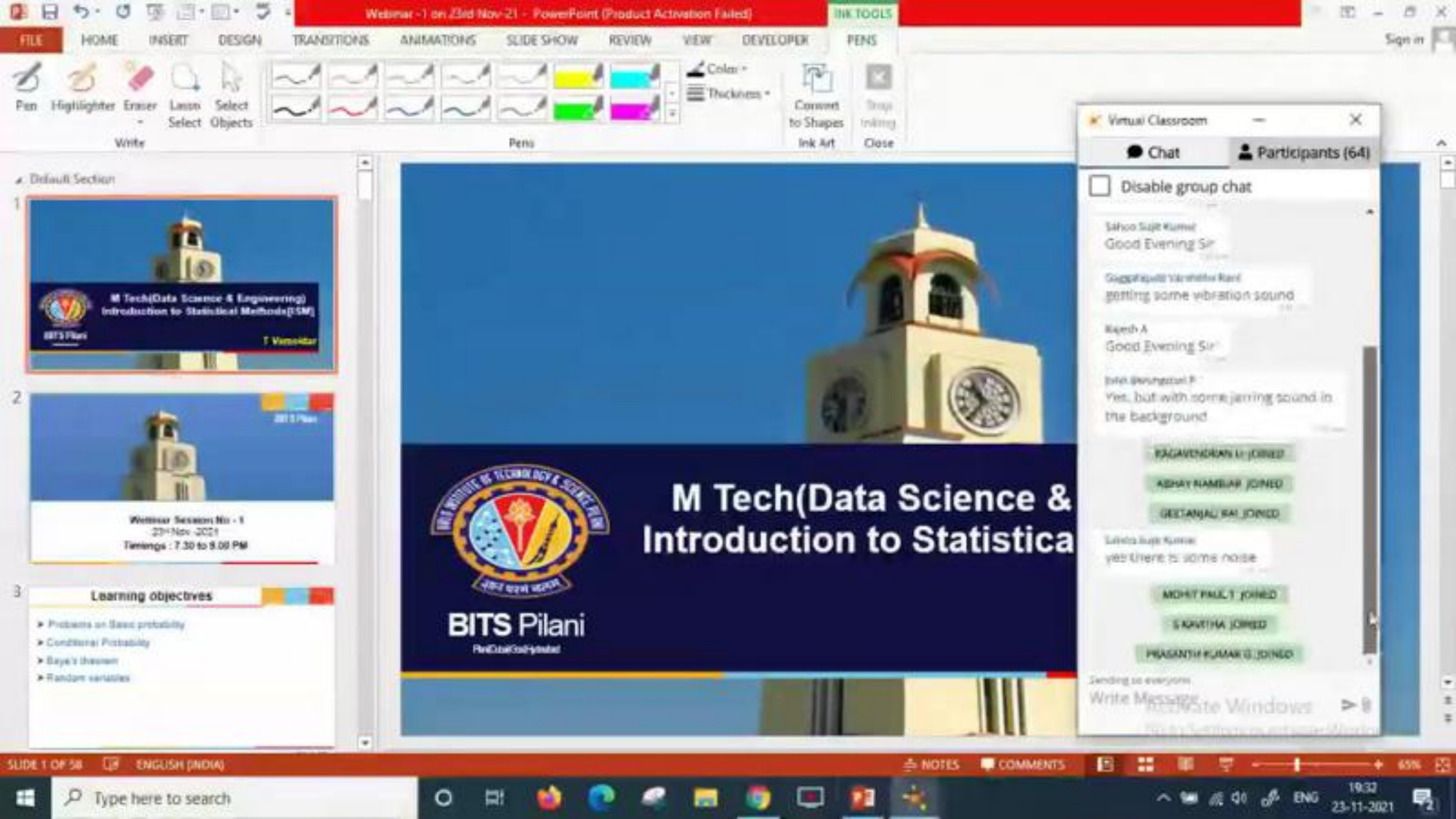
23-11-2021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Webinar Session No - 1
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Problems on Basic probability
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Baye's theorem
Random variables
M Tech(Data Science &
Introduction to Statistica
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Virtual Classroom
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Sahoo Sujit Kumar
Good Evening Sir
getting some vibration sound
Rajesh A
Good Evening Sir
Yes, but with some jarring sound in the background
RAGAVENDRAN U JOINED
ABHAY NAMBIAR JOINED
GEETANJALI RAI JOINED
yes there is some noise
MOHIT PAUL T JOINED
S KAVITHA JOINED
PRASANTH KUMAR G JOINED
Write Message
Activate Windows
SLIDE 1 OF 58
ENGLISH (INDIA)
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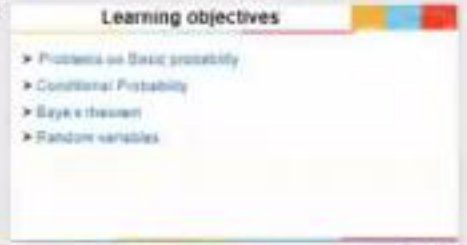


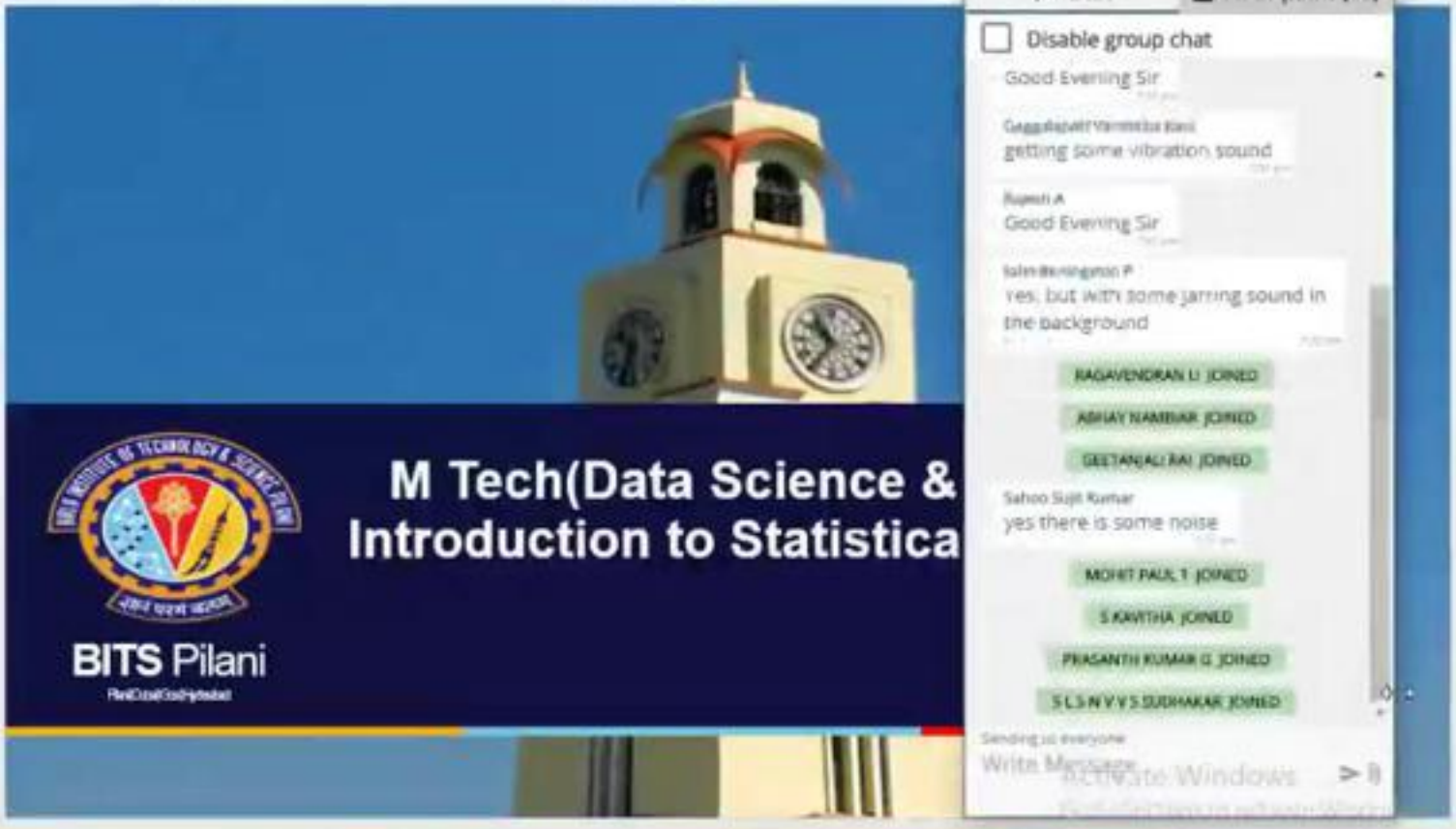


Virtual Classroom

Chat Participants (65)

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Good Evening Sir

getting some vibration sound

Rajesh A
Good Evening Sir

Yes, but with some jarring sound in the background

RAGAVENDRAN U JOINED

ABHAY NAMBIAR JOINED

GEETANJALI RAI JOINED

Sahoo Sujit Kumar
yes there is some noise

MOHIT PAUL T JOINED

S KAVITHA JOINED

PRASANTH KUMAR G JOINED

S L S N V V S SUDHAKAR JOINED

Sending to everyone

Write Message

Activate Windows

SLIDE 1 OF 56 ENGLISH (INDIA) NOTES COMMENTS 65%

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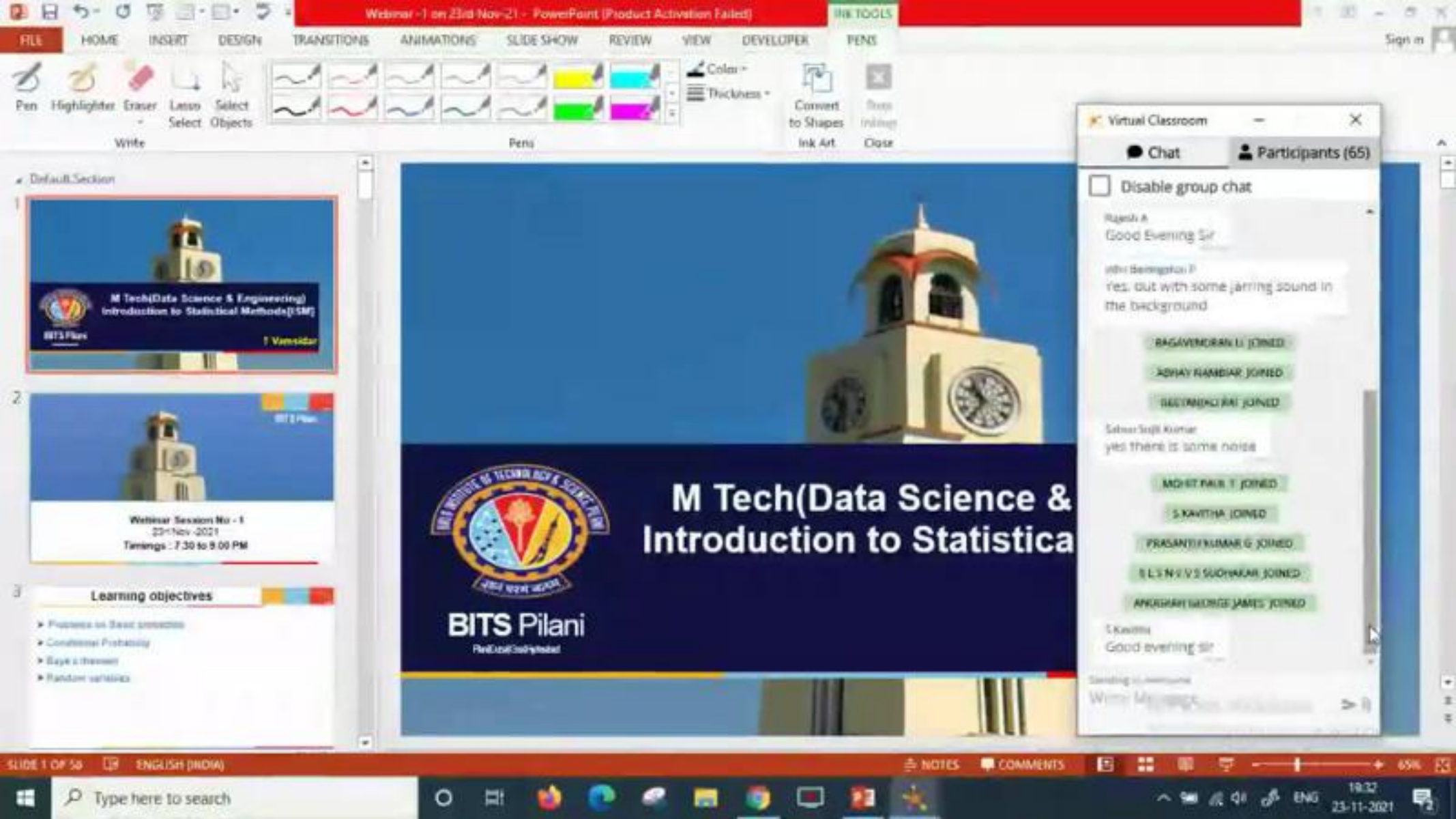
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BITS Pilani
Webinar Session No - 1
23rd Nov 2021
Timings : 7.30 to 9.00 PM
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M Tech(Data Science &
Introduction to Statistica
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Virtual Classroom
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Participants (65)
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Good Evening Sir
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yes there is some noise
Good evening sir
SLIDE 1 OF 50
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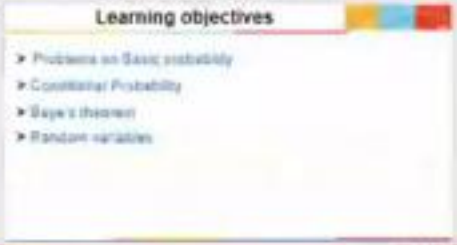


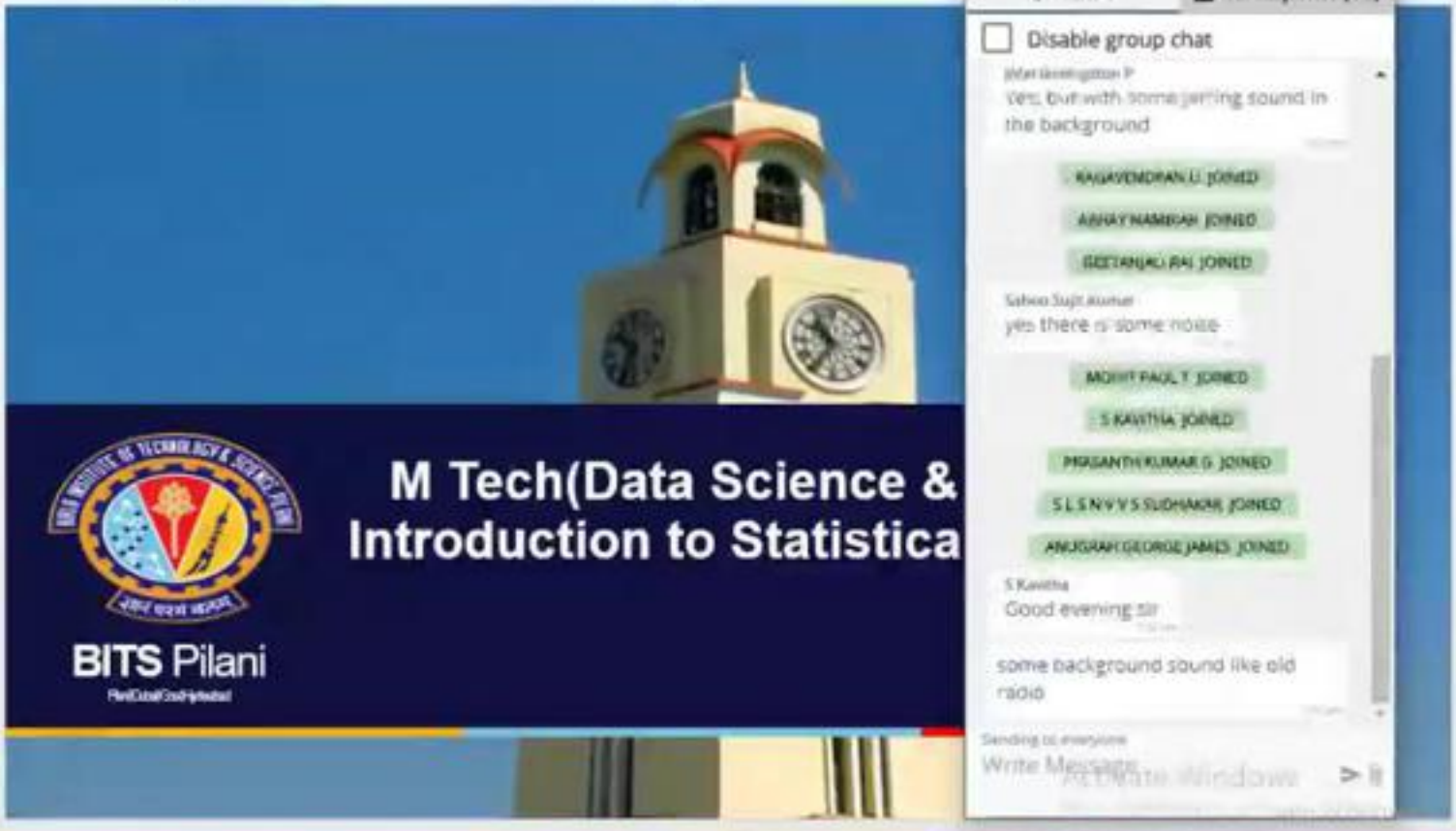


Virtual Classroom

Chat Participants (66)

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Ves, but with some jarring sound in the background

RAGAVENDRAN U JOINED

ABHAY NAMBIAR JOINED

GEETANJALI RAI JOINED

Sahoo Sujit kumar
yes there is some noise

MOHIT PAUL T JOINED

S KAVITHA JOINED

PRASANTH KUMAR G JOINED

S L S N V V S SUDHAKAR JOINED

ANUGRAH 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 65%

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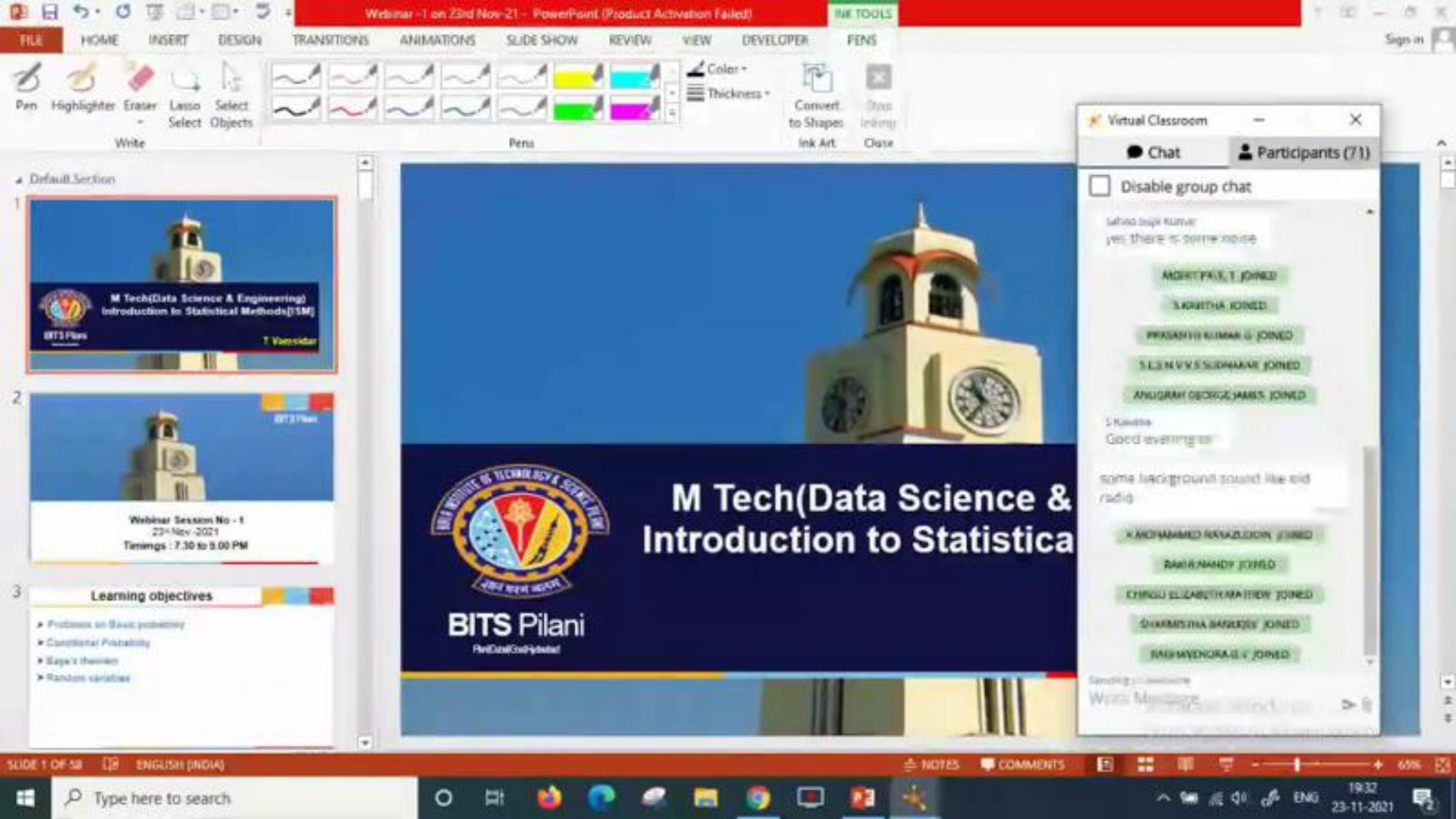
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Introduction to Statistical Methods(ISM)
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Webinar Session No - 1
23rd Nov -2021
Timings : 7.30 to 9.00 PM
Learning objectives
Problems on Basic probability
Conditional Probability
Baye's theorem
Random variables
M Tech(Data Science &
Introduction to Statistica
BITS Pilani
Virtual Classroom
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Participants (71)
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yes, there is some noise
Good evening sir
some background sound like old radio
Write Message
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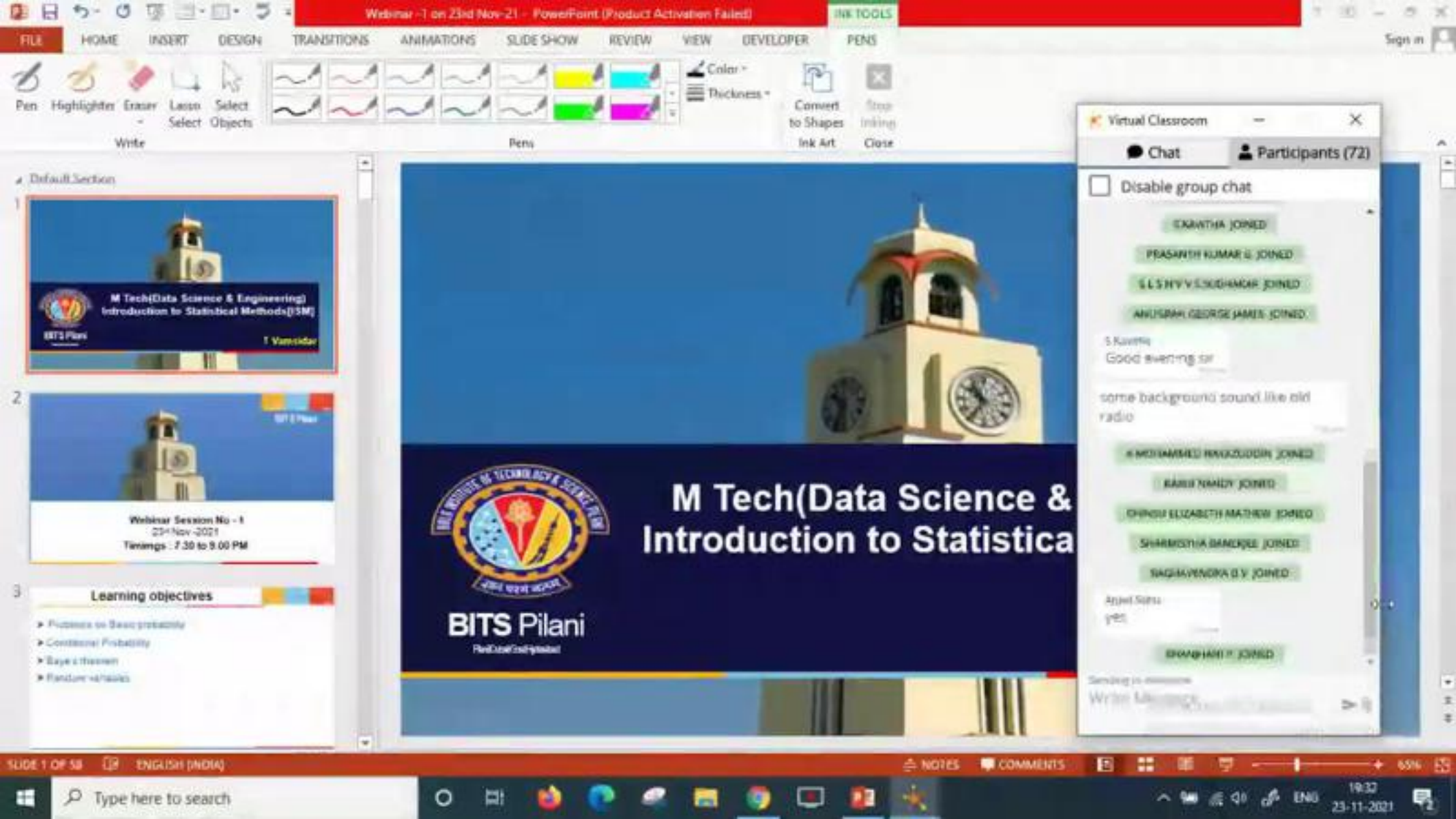
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Learning objectives
Problems on Basic probability
Conditional Probability
Baye's theorem
Random variables
M Tech(Data Science &
Introduction to Statistica
BITS Pilani
Virtual Classroom
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Participants (72)
Disable group chat
CHAVITHA JOINED
PRASANTH KUMAR G JOINED
S L S N V V S SUDHAKAR JOINED
ANUSHAH GEORGE JAMES JOINED
S Kavitha
Good evening sir
some background sound like old radio
K MOHAMMED RAHIZUDDIN JOINED
RAHUL NANDY JOINED
CHINCU ELIZABETH MATHEW JOINED
SHARMISTHA BANERJEE JOINED
RAGHAVENDRA G V JOINED
Anjali Sonu
yes
BHARGHAVI P JOINED
Write Message
SLIDE 1 OF 58
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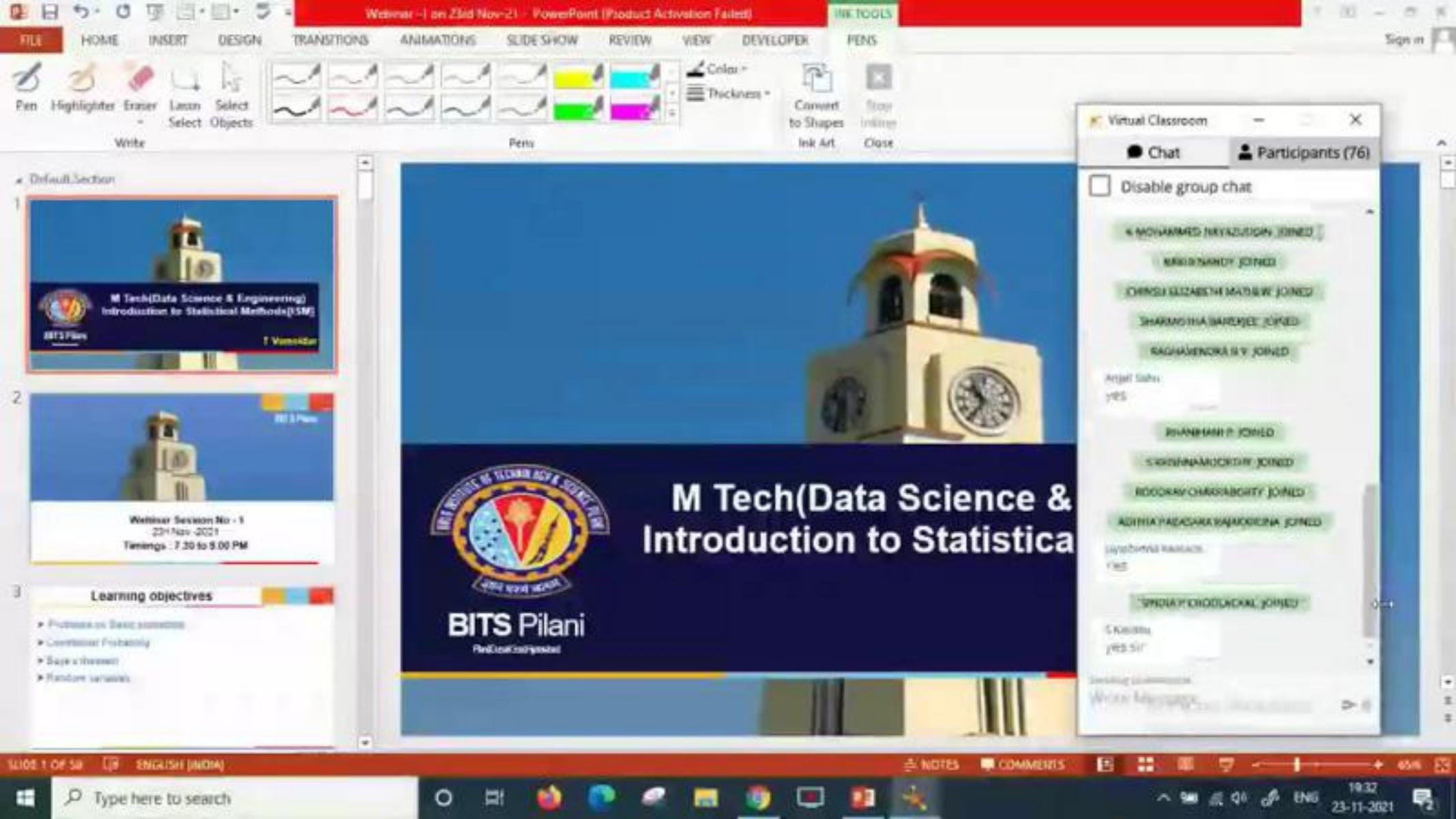
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Timings : 7.30 to 9.00 PM
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Anjali Sahu
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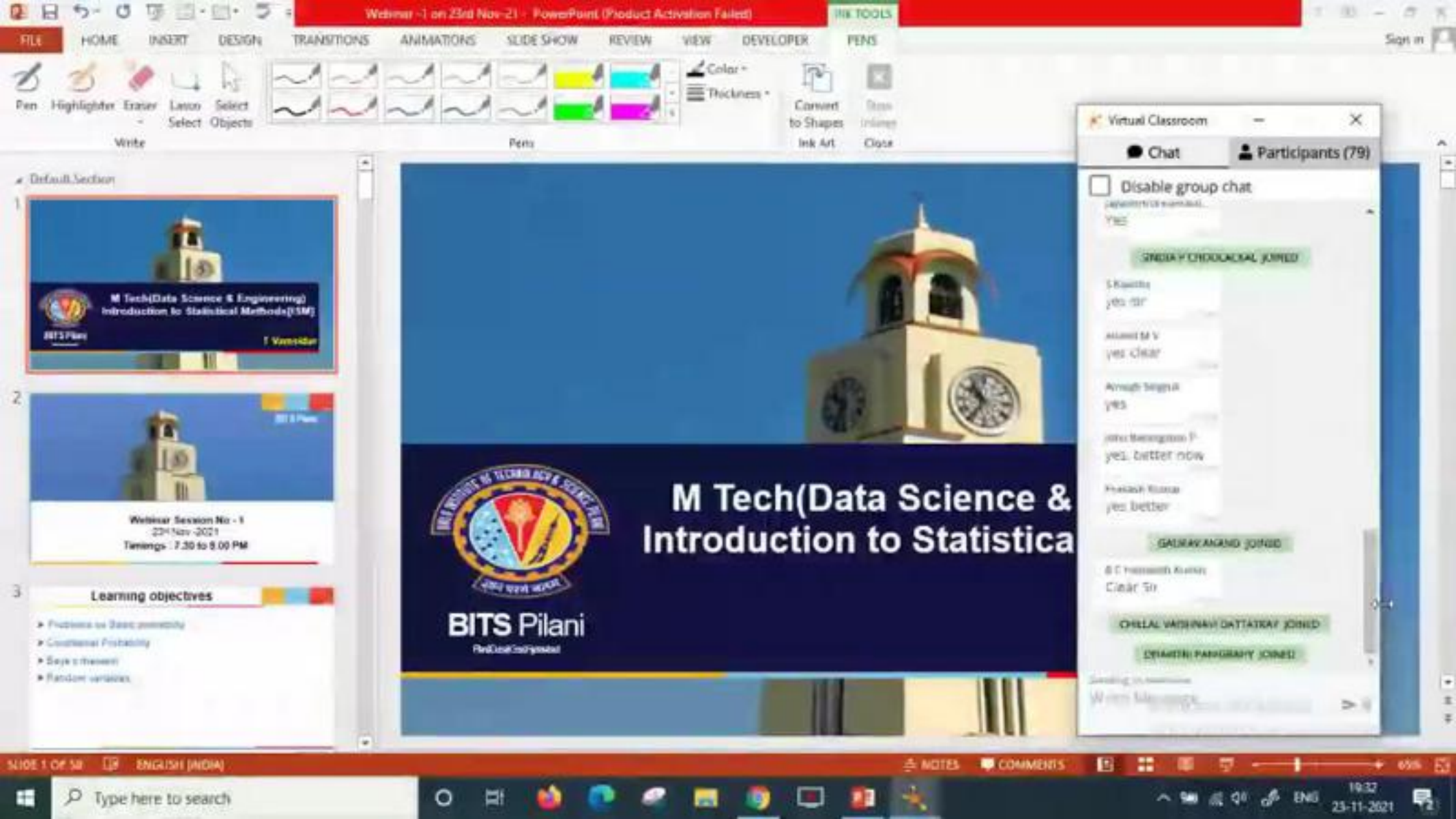
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Webinar Session No - 1
23rd Nov -2021
Timings : 7.30 to 9.00 PM
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M Tech(Data Science &
Introduction to Statistica
BITS Pilani
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Participants (79)
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yes
yes clear
yes
yes, better now
yes better
Clear Sir
SLIDE 1 OF 58
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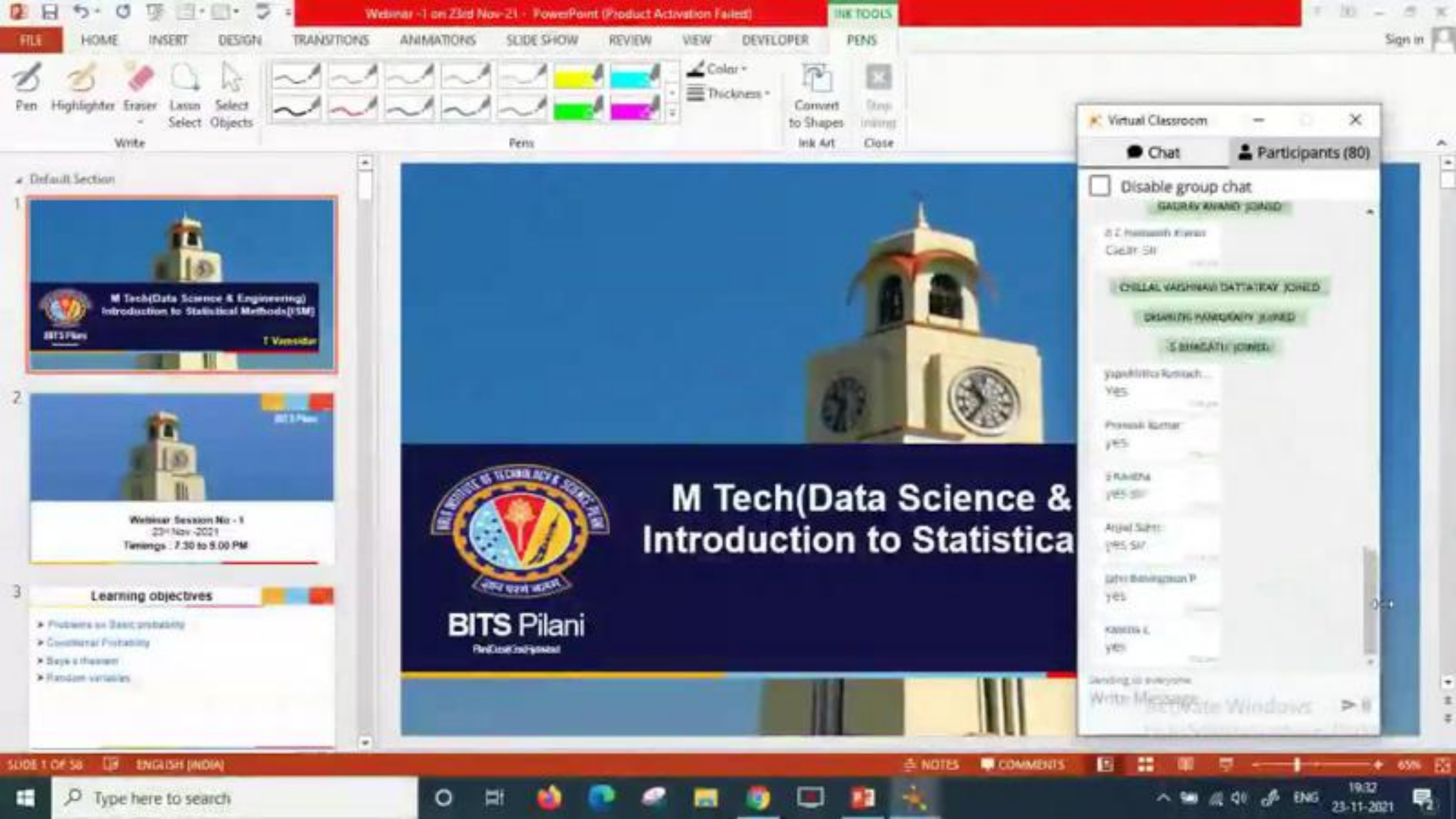
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23rd Nov -2021
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Learning objectives
Problems on Basic probability
Conditional Probability
Baye's theorem
Random variables
M Tech(Data Science &
Introduction to Statistica
BITS Pilani
Virtual Classroom
Chat
Participants (80)
Disable group chat
GAURAV ANAND JOINED
CHILLAL VAISHNAVI DATTATRAY JOINED
DHANUSH PANDIDAIYY JOINED
S BHAGATH JOINED
Yes
Pranesh Kumar
yes
Anjali Sahni
yes sir
yes
Write Message
SLIDE 1 OF 56
ENGLISH (INDIA)
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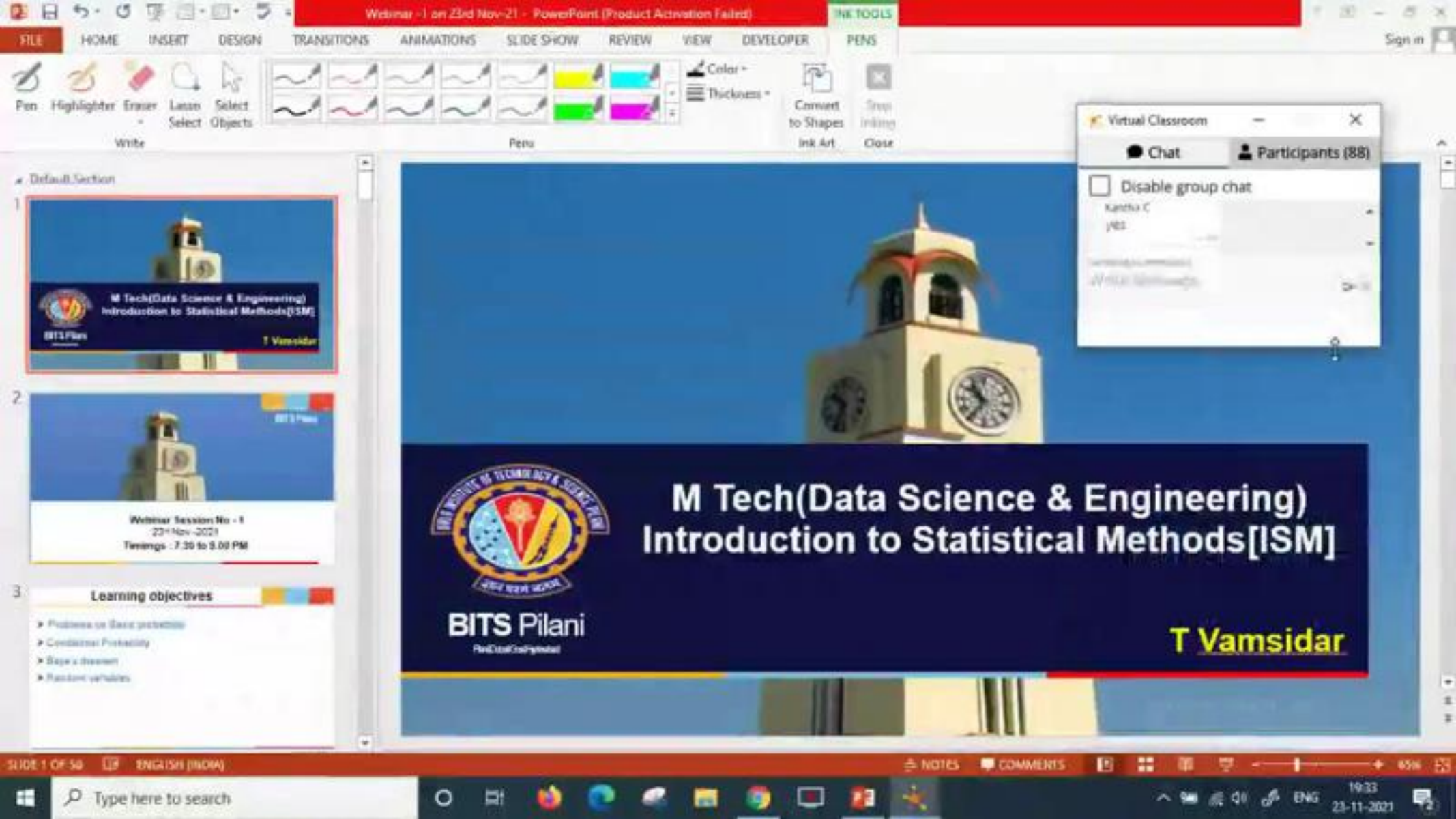
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M Tech(Data Science & Engineering)
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Webinar Session No - 1
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SLIDE 1 OF 50
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SLIDE 1 OF 56
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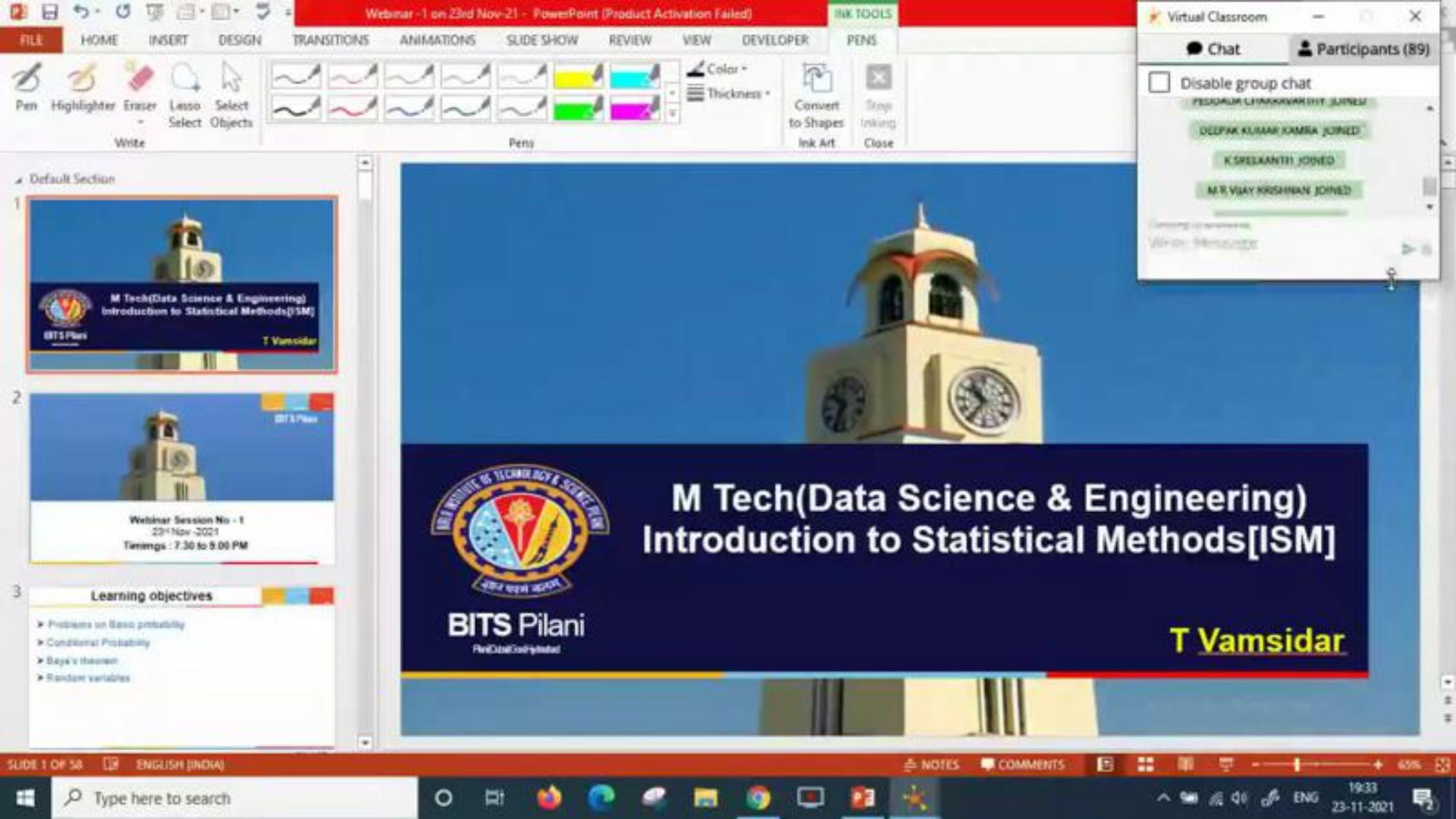
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DEEPAK KUMAR KAMRA JOINED
K SREEKANTH JOINED
M R VIJAY KRISHNAN JOINED
Default Section
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M Tech(Data Science & Engineering)
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Baye's theorem
Random variables
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BITS Pilani
T Vamsidar
SLIDE 1 OF 58
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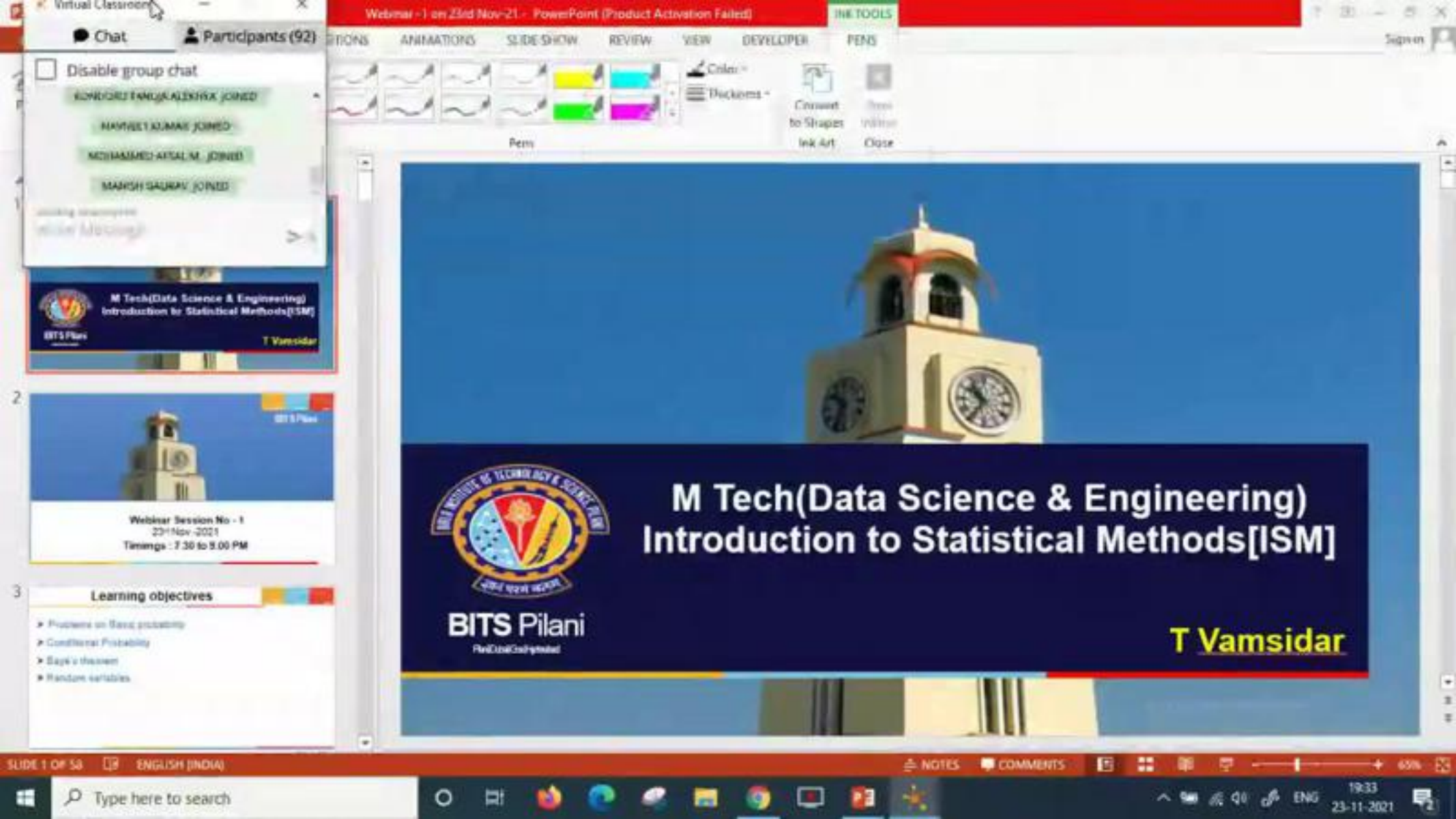
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Introduction to Statistical Methods[ISM]
BITS Pilani
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Webinar Session No - 1
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Introduction to Statistical Methods[ISM]
T Vamsidar
SLIDE 1 OF 58
ENGLISH (INDIA)
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23-11-2021

Virtual Classroom

Chat | Participants (92)

Disable group chat

KONDURU TANUJA ALEKHYA JOINED

NAVNEET KUMAR JOINED

MOHAMMED AFSAL M. JOINED

MANISH GAURAV JOINED

Sending to everyone

Write Message

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

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

BITS Pilani

T Vamsidar

2

Webinar Session No - 1

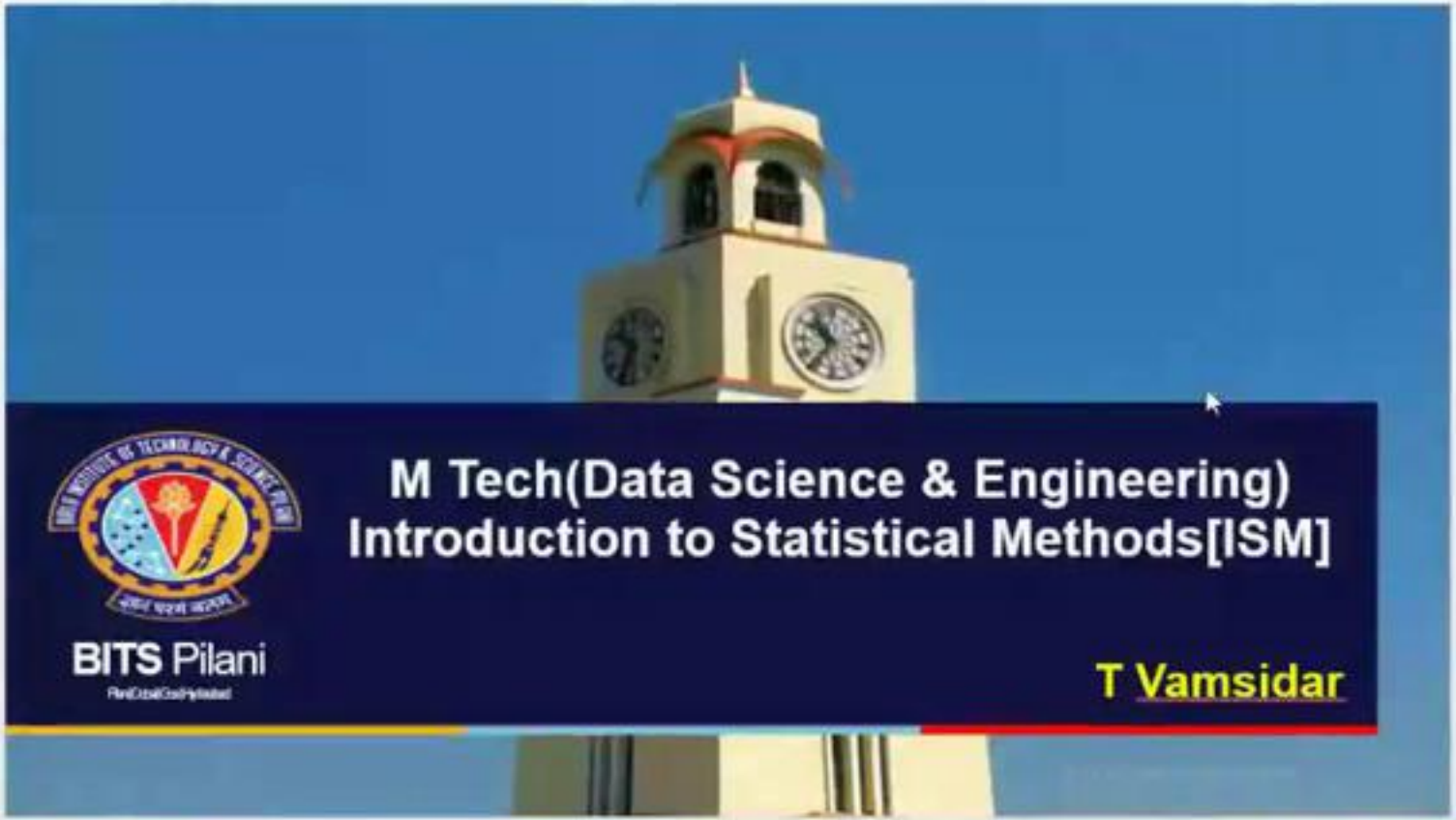
23rd Nov 2021

Timings : 7.30 to 9.00 PM

3

Learning objectives

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




SLIDE 1 OF 56 | ENGLISH (INDIA)

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Virtual Classroom

Chat | Participants (92)

Disable group chat

KONDURU TANUJA ALEKHYA JOINED

NAVNEET KUMAR JOINED

MOHAMMED AFSAL M. JOINED

MANISH GAURAV JOINED

Write Message

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

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M Tech(Data Science & Engineering)
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T Vamsidar

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Webinar Session No - 1
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Timimgs : 7.30 to 9.00 PM

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Learning objectives

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


# Webinar Session No - 1

23rd Nov -2021

**Timimgs : 7.30 to 9.00 PM**

SLIDE 2 OF 58 | ENGLISH (INDIA) | NOTES | COMMENTS | 69%

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# Learning objectives

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

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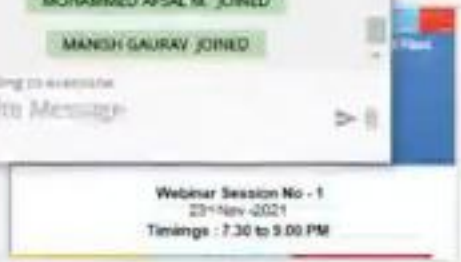


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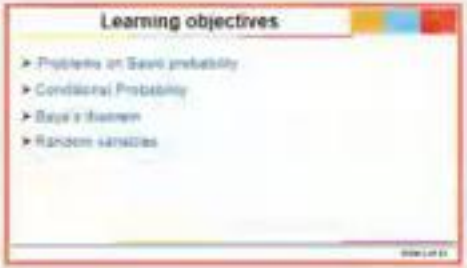


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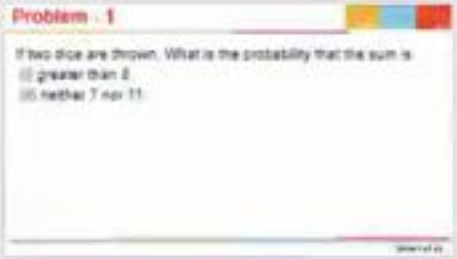


# Learning objectives

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

Slide 3 of 23

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

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

4
Problem - 1
If two dice are thrown, What is the probability that the sum is
(i) greater than 8
(ii) neither 7 nor 11.

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(ii) neither 7 nor 11.

# 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) }

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

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

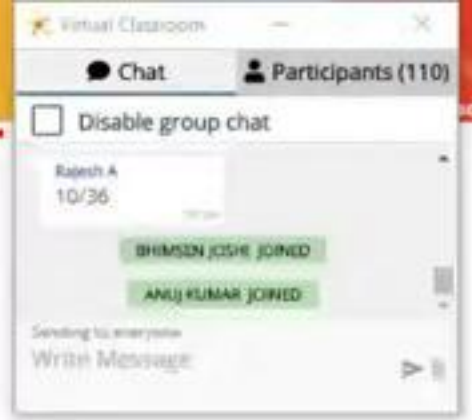
$$P(A = 10) = \frac{\text{Favourable cases for A}}{\text{Exhaustive number of cases}} = {}^{3}/_{36}$$

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

$P(A = 11) = {}^{2}/_{36}$

sum is 12 = { (6,6) }

$P(A) = {}^{1}/_{36}$



# Solution -1

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

$= {}^{4}/_{36} + {}^{3}/_{36} + {}^{2}/_{36} + {}^{1}/_{36}$

$= {}^{10}/_{36}$

(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) }

$P(B) = {}^{6}/_{36} = {}^{1}/_{6}$

**Let C denote the event of getting the sum is 11**

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

$P(C) = {}^{2}/_{36}$

# Problem - 1

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

(i) greater than 8

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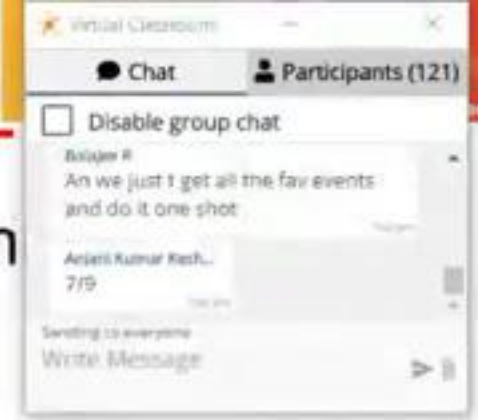

# Solution -1

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

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(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) }

$P(B) = {}^{6}/_{36} = {}^{1}/_{6}$

**Let C denote the event of getting the sum is 11**

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

$P(C) = {}^{2}/_{36}$

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

# 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.

$P(A) = 0.30$ *and* $P(B) = 0.50$

i. $P(A') = 1 - P(A)$

$= 1 - 0.30$

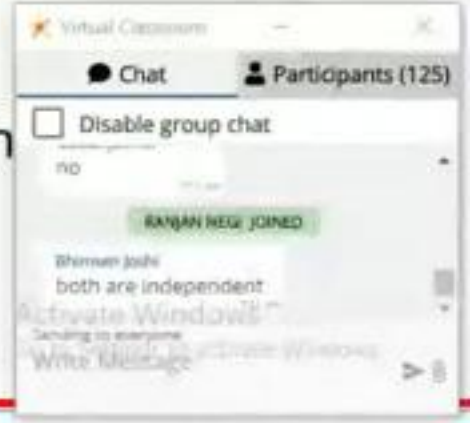
$= 0.70$

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 independen

$= 0.3 + 0.5 - [0.3 * 0.5]$

$= 0.65$



# 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.

$P(A) = 0.30$ *and* $P(B) = 0.50$

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

i. $P(A') = 1 - P(A)$

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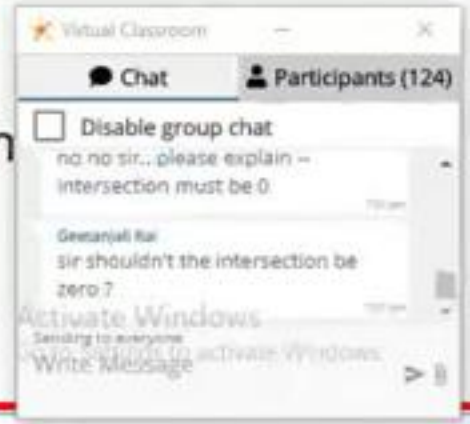


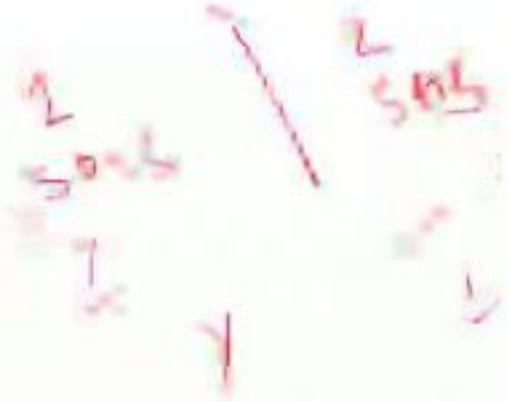
# Problem - 2

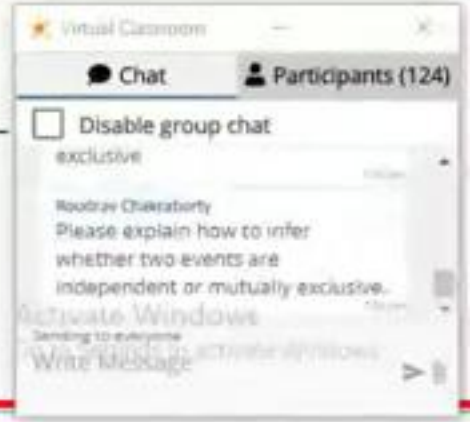
Let $A$ denote the event that the next request for assistance from a statistical software consultant relates to the SPSS package, and let $B$ be the event that the next request is for help with SAS Suppose that $P(A) = 0.30$ *and* $P(B) = 0.50$

a. Calculate $P(A')$ .

b. Calculate $P(A \cup B)$ .

c. 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

$P(A) = 0.40$ and $P(B) = 0.50$

And given that

$P(A \cup B) = 0.6$

i. $P(A \cap B) = P(A) + P(B) - P(A \cup B)$

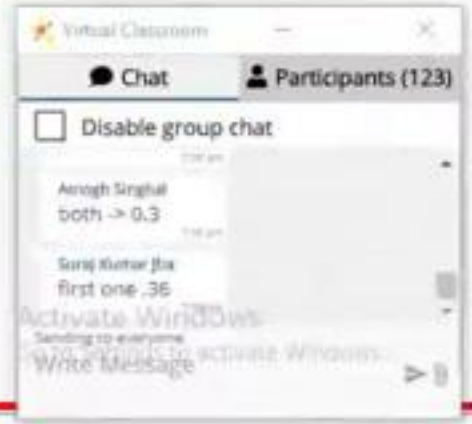
$= 0.4 + 0.5 - 0.6 = 0.3$

ii. $P(A \cap B') = P(A) - P(A \cap B)$

$= 0.4 - 0.3 = 0.1$

iii. $P(\text{At exactly one signal}) = P(A \cup B) - P(A \cap B)$

$= 0.6 - 0.3 = 0.3$



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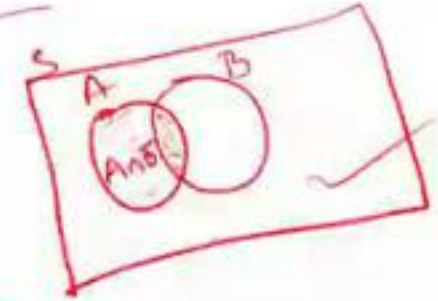



*i.* $P(A \cap B) = P(A) + P(B) - P(A \cup B)$

$= 0.4 + 0.5 - 0.6 = 0.3$

ii. $P(A \cap B') = P(A) - P(A \cap B)$

$= 0.4 - 0.3 = 0.1$

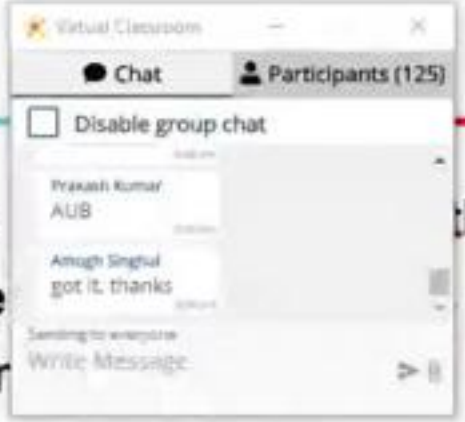
$P[(A \cap \bar{B}) \cup (\bar{A} \cap B)]$

$= P(A \cap \bar{B}) + P(\bar{A} \cap B)$

iii. $P(\text{At exactly one signal}) = P(A \cup B) - P(A \cap B)$

$= 0.6 - 0.3 = 0.3$

# Problem - 4

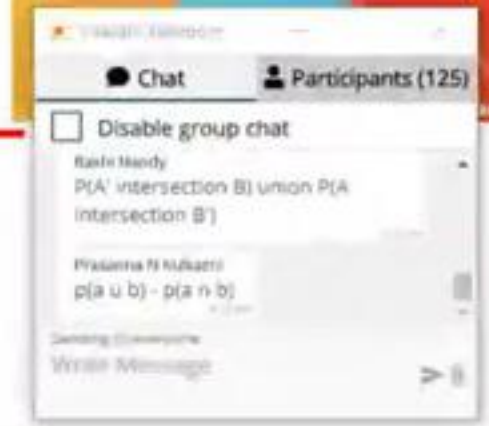



The odds that person X speaks the [illegible] the odds that person Y Speaks the truth are 5:3. In what pe[illegible] are they likely to contradict each on an identical poir[illegible]

# Problem - 4

**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?**

# 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

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

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

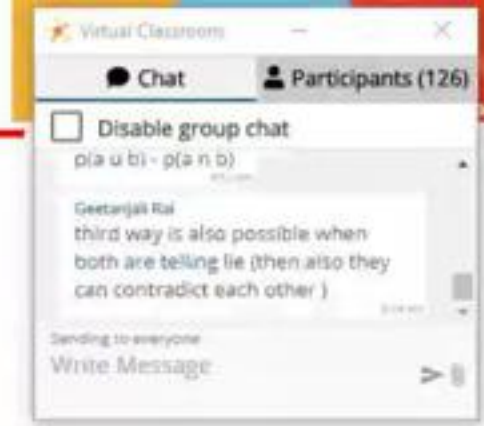
The event C that X and Y contradict each other on an-identical point.

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**

$$P(C) = P(A \cap \bar{B}) + P(\bar{A} \cap B)$$

$$= P(A) \,.\, P(\bar{B}) + P(\bar{A}) \,.\, P(B)$$

[ A and B are independent events]

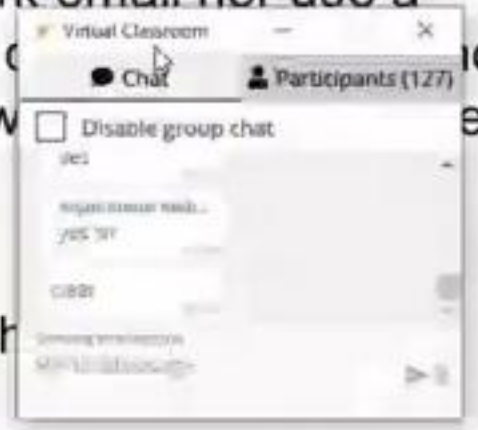
$$= \frac{3}{5} \cdot \frac{3}{8} + \frac{2}{5} \cdot \frac{5}{8}$$

$$= 0.475$$

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

# 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** c…o bring a laptop also check work email, and **70** out of every 100 w…e to stay connected also bring a laptop.




a. What is the probability that a randomly selected traveller who ch… also uses a cell phone to stay connected?

b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

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a. What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?

b. What is the probability that someone who brings a laptop or s a cell phone to stay connected?

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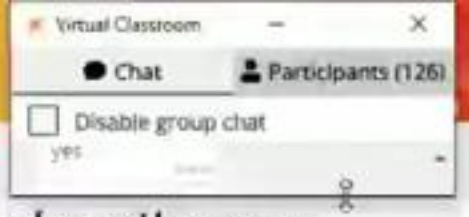
# Problem - 5

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a. What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?

b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

# Solution - 5



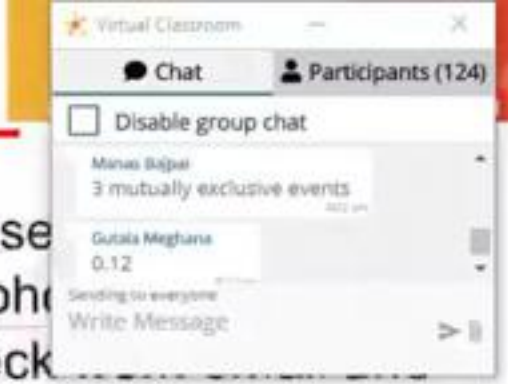
Let $A_E = \{Check\ work\ mail\}$
Let $A_c = \{use\ a\ cell\ phone\ to\ stay\ connected\ to\ work\}$
Let $A_l = \{bring\ a\ laptop\}$
We are given the following probabilities
$P(A_E) = 0.4$
$P(A_c) = 0.3$ and $P(A_l) = 0.25$

$P(A_E \cap A_c) = 0.23$

$P(A'_E \cap A'_c \cap A'_l) = 0.51$
$P(A_E/A_l) = 0.88$

$P(A_l/A_c) = 0.7$

# Problem - 5

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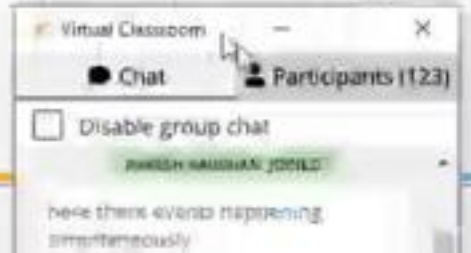

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$P(A_E/A_l) = 0.88$

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b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

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

a. What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?

b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

# Solution - 5

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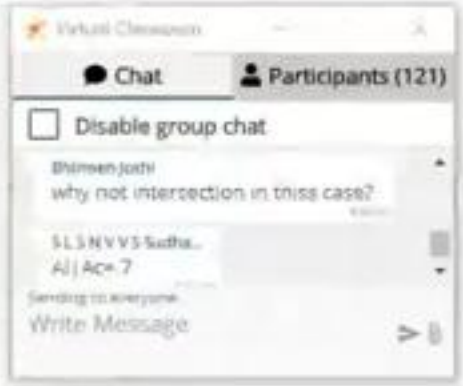

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$P(A_E' \cap A_C' \cap A_L') = 0.51$

a. What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?

b. What is the probability that someone who brings a laptop on vacation also uses a cell phone to stay connected?

$P(A_E / A_L) = 0.88$

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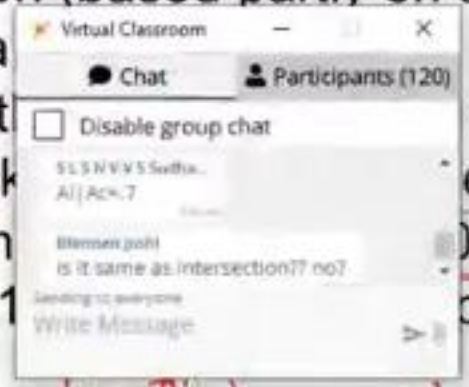


$P(A_E' \cap A_C' \cap A_L) = 0.51$

a. What is the probability that a randomly selected traveller who checks work email also uses a cell phone to stay connected?

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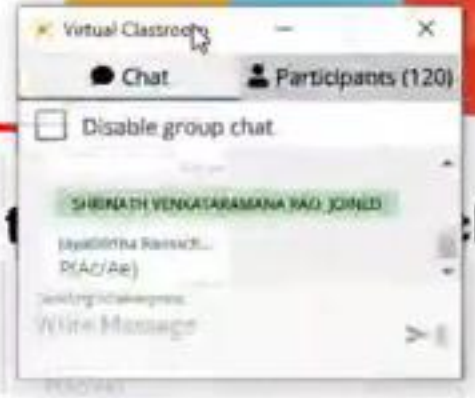
$P(A_E / A_L) = 0.88$




a. We need to find the probability that a randomly selected f ks work email also uses a cell phone to stay connected.

Which is a conditional probability of $A_c$ given $A_E$ i.e,

$$P\left(A_c / A_E\right) = \frac{P(A_c \cap A_E)}{A_E}$$

$$= \frac{0.23}{0.4} = 0.575$$

# Problem - 6

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 and P(B) = 0.05

and given that $B \subseteq A$

From sets operations $A \cap B = B$

then P($A \cap B$) = P (B) = 0.05

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

# 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

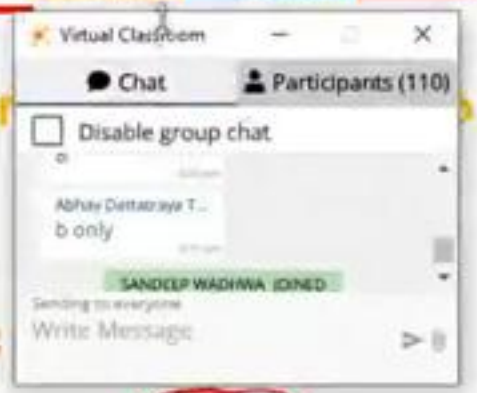
P(A) = 0.6 and P(B) = 0.05

and given that $B \subseteq A$

From sets operations $A \cap B = B$

then P($A \cap B$) = P (B) = 0.05

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




A∩B

# 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 p

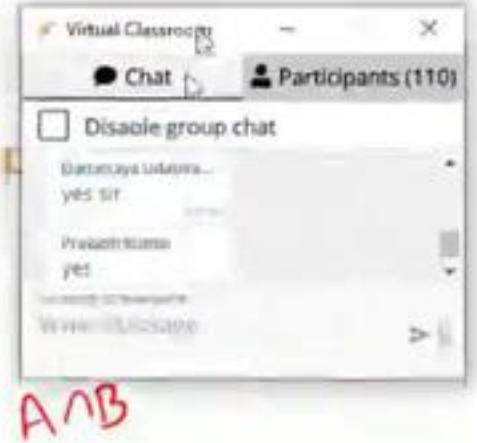
P(A) = 0.6 and P(B) = 0.05

and given that $B \subseteq A$

From sets operations $A \cap B = B$

then P($A \cap B$) = P (B) = 0.05

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



# 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?

# 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, and P(E / D)= 0.50

# Problem - 7

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B D

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B D

$P(B) = 0.4$

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

# Solution - 7

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

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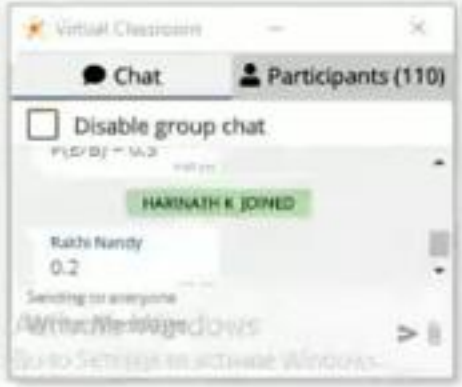

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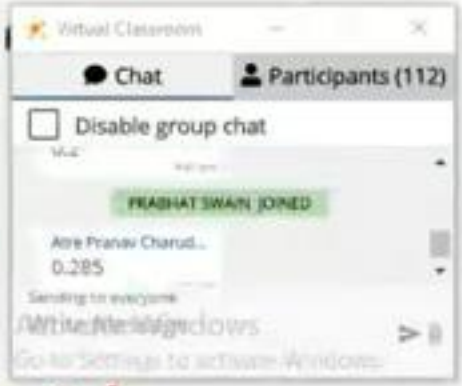

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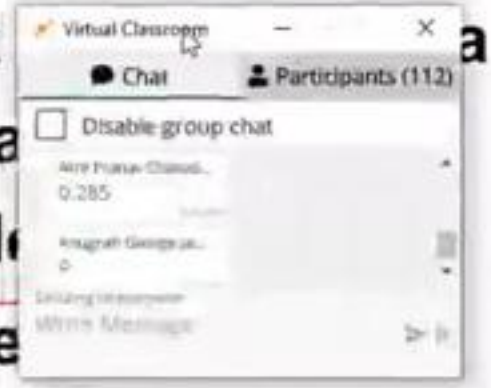



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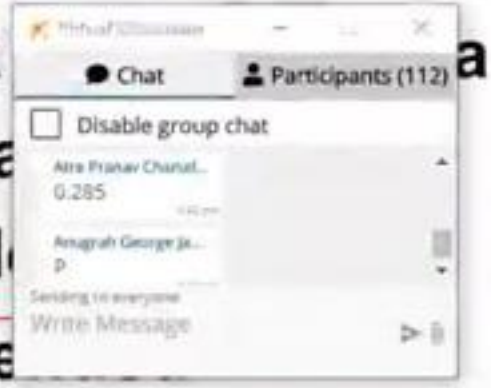



B D

$P(B) = 0.4$

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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.


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

$P(E / B) = 0.30$, and $P(E / D) = 0.50$

# Solution - 7

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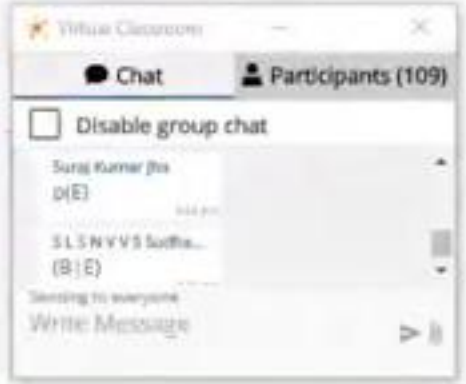


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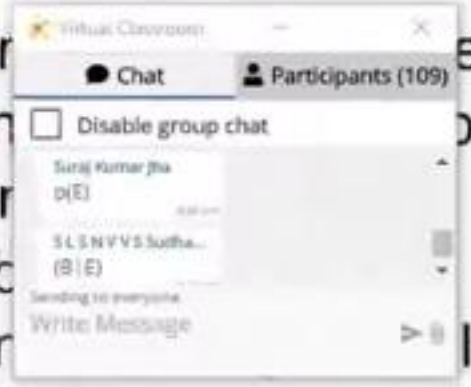
# Probability Tree Diagram


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

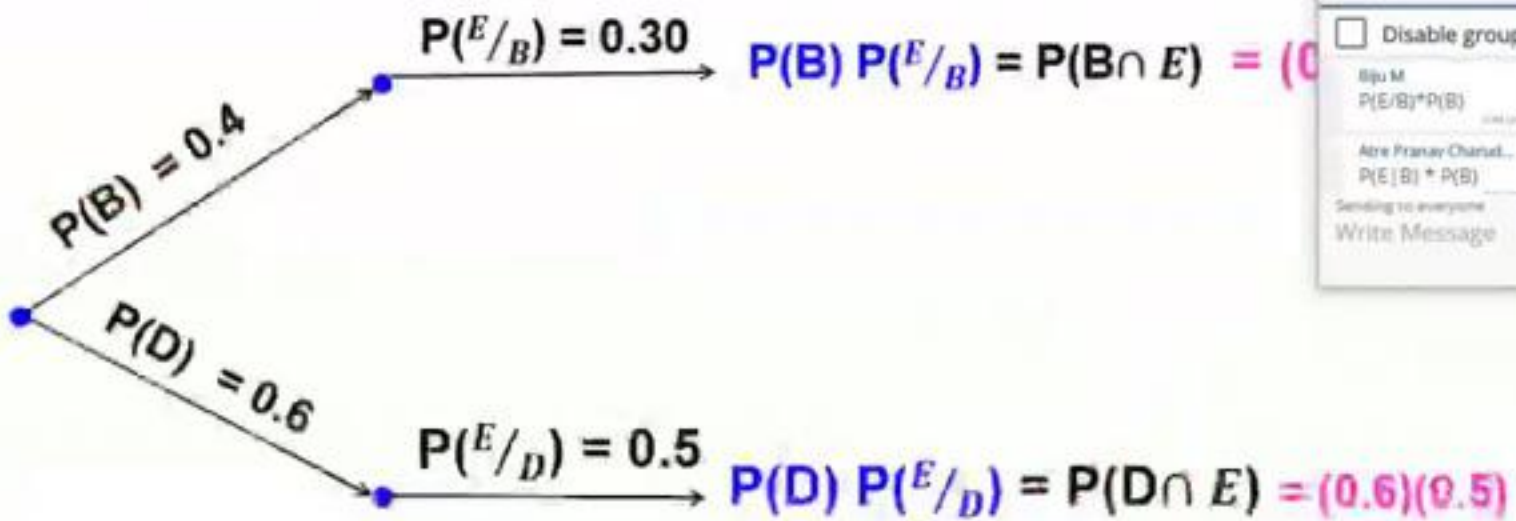
# Problem - 8

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

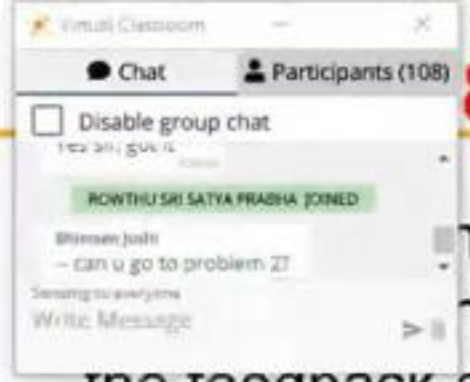

P(B) = 0.40, P(D)= 0.60,

P(E / B)= 0.30, and P(E / D)= 0.50

# Probability Tree Diagram


$P(E/D) = 0.5$

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




8

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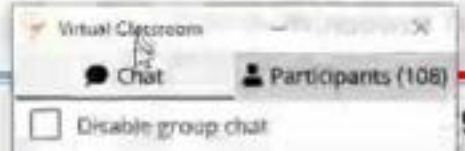

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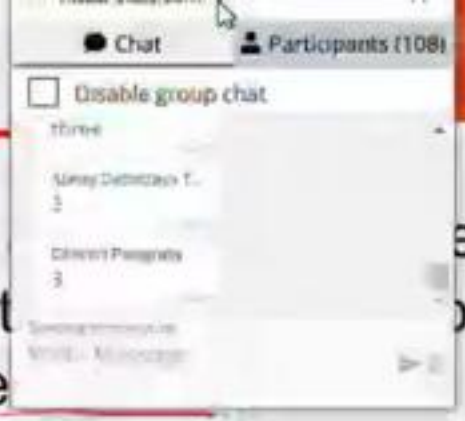
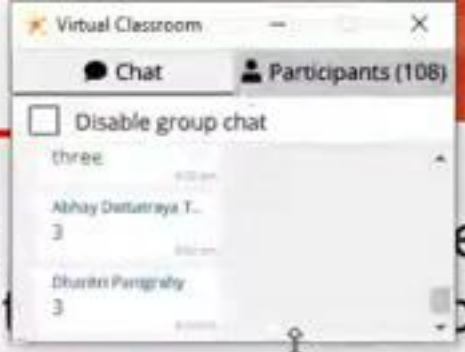


# Problem - 8

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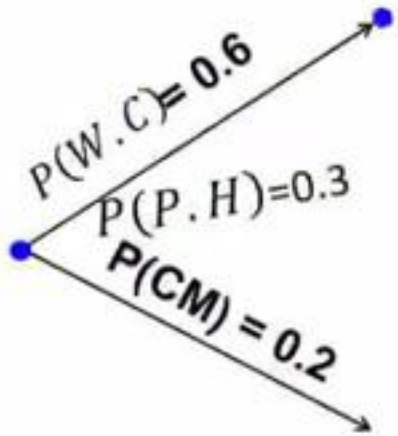
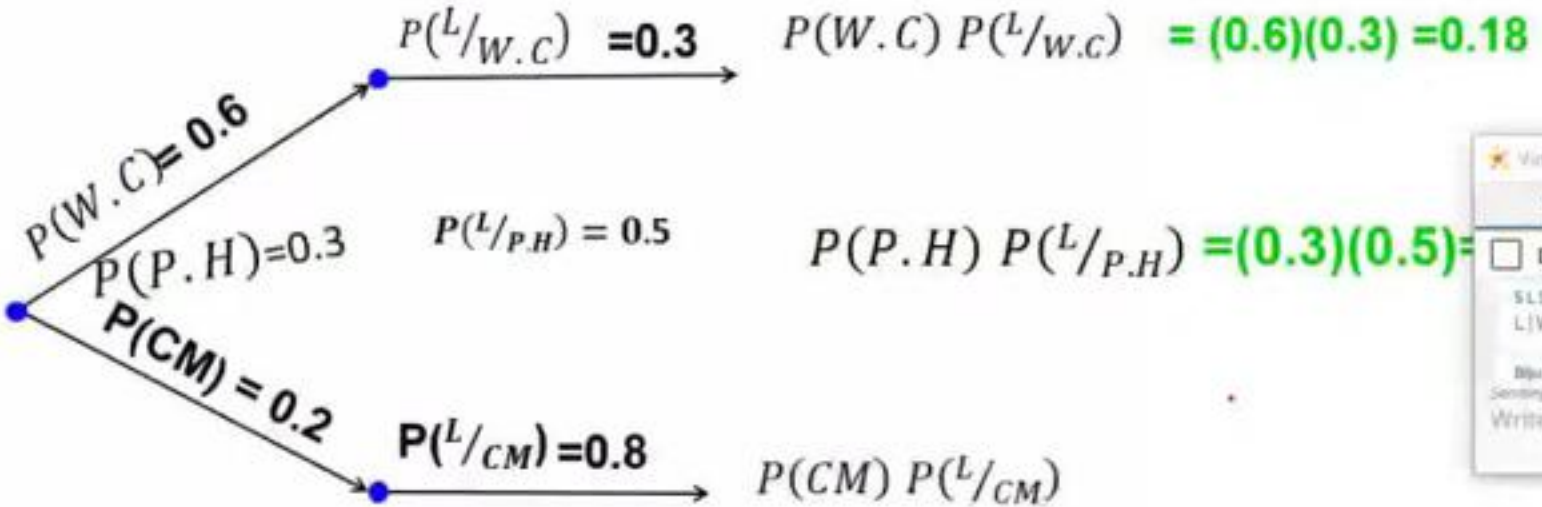



$P(^{L}/_{P.H}) = 0.5$

$P(P.H)\ P(^{L}/_{P.H})$ =(0.3)(0.5)=

# Probability Tree Diagram

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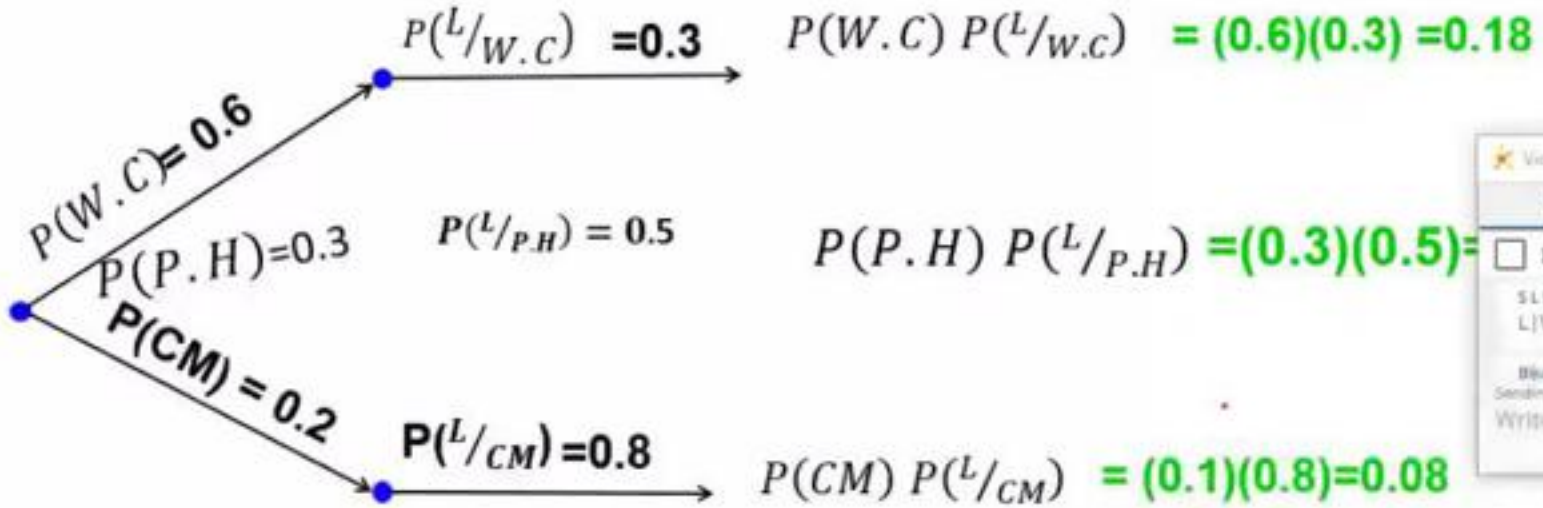


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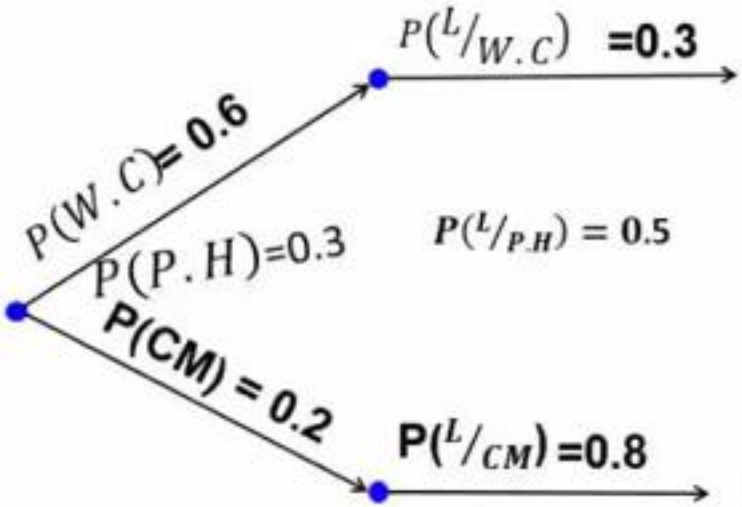
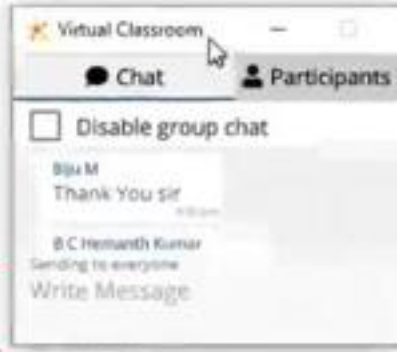



$P(W.C)\ P(^{L}/_{W.C})$ = (0.6)(0.3) =0.18

$P(P.H)\ P(^{L}/_{P.H})$ =(0.3)(0.5)=0.15

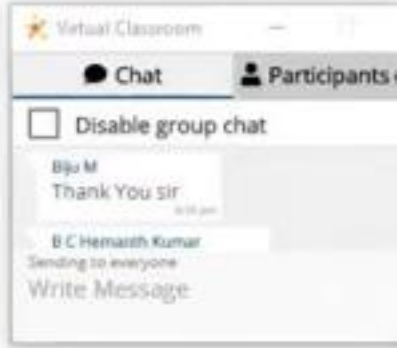
$P(CM)\ P(^{L}/_{CM})$ = (0.1)(0.8)=0.08

**P(L)** $= P(W.C)\ P(^{L}/_{W.C}) + P(P.H)\ P(^{L}/_{P.H}) + P(CM)\ P(^{L}/_{CM})$



# Problem - 9

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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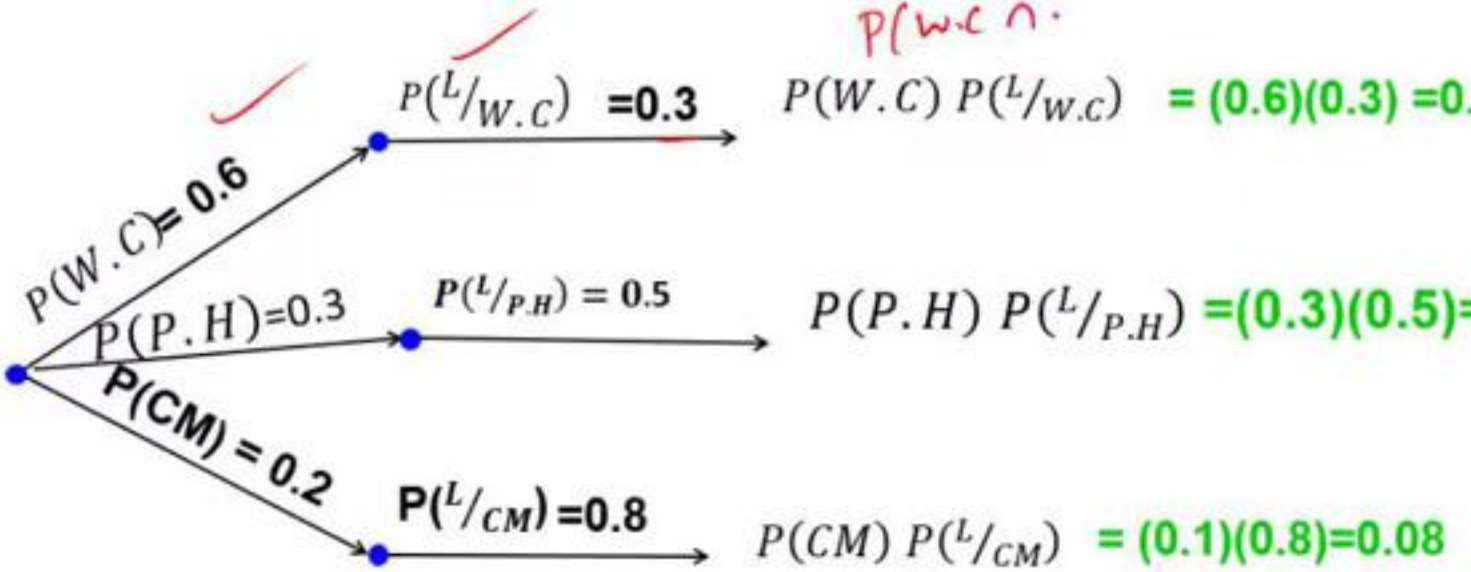


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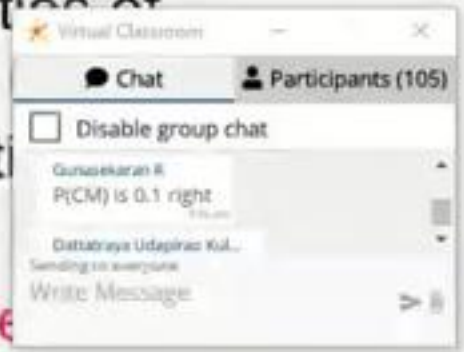
$P(CM)\ P(^{L}/_{CM})$ = (0.1)(0.8)=0.08

**P(L)** $= P(W.C)\ P(^{L}/_{W.C}) + P(P.H)\ P(^{L}/_{P.H}) + P(CM)\ P(^{L}/_{CM})$ = 0.41

# 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 And the probabilities that they are leaving the organizati reasons are 0.3, 0.5and 0.8 respectively."




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

$P(W) = 0.6$
$P(P.H) = 0.3$
$P(C) = 0.1$

# Problem - 8

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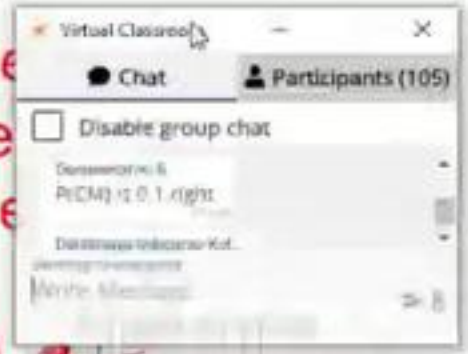



P(W) = 0.6
P(P.H) = 0.3
P(C) = 0.1

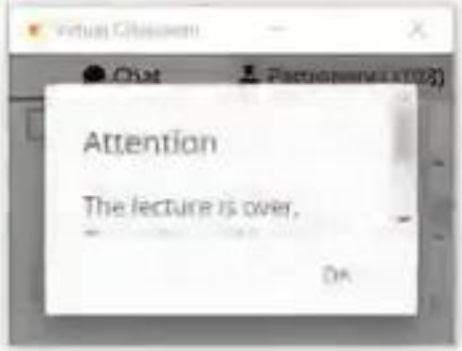
# Solution - 8

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

$= P(W.C)P(^{L}/_{W.C}) + P(P.H)P(^{L}/_{P.H}) + P(CM)P(^{L}/_{CM})$

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

$= 0.41$



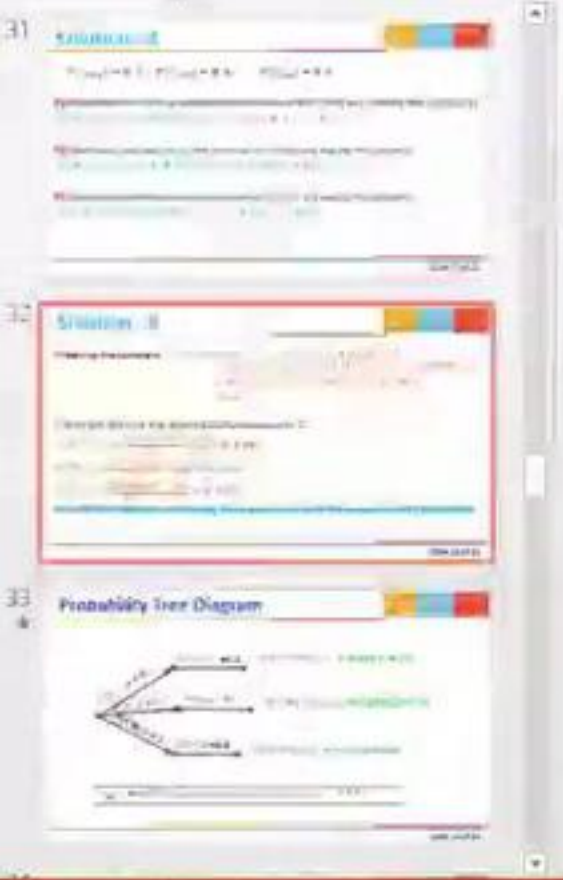

$P[\text{they are leaving the organization, because of W.C}]$

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

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

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

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



# Problem - 1

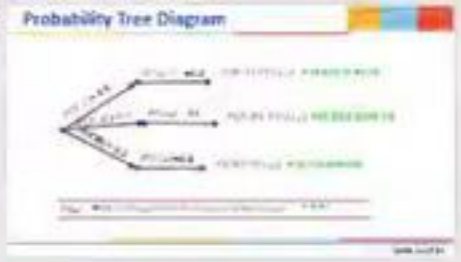
If two dice are thrown, What is the probability that the sum is

(i) greater than 8

(ii) neither 7 nor 11.

31

32

33



# Solution - 8

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

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

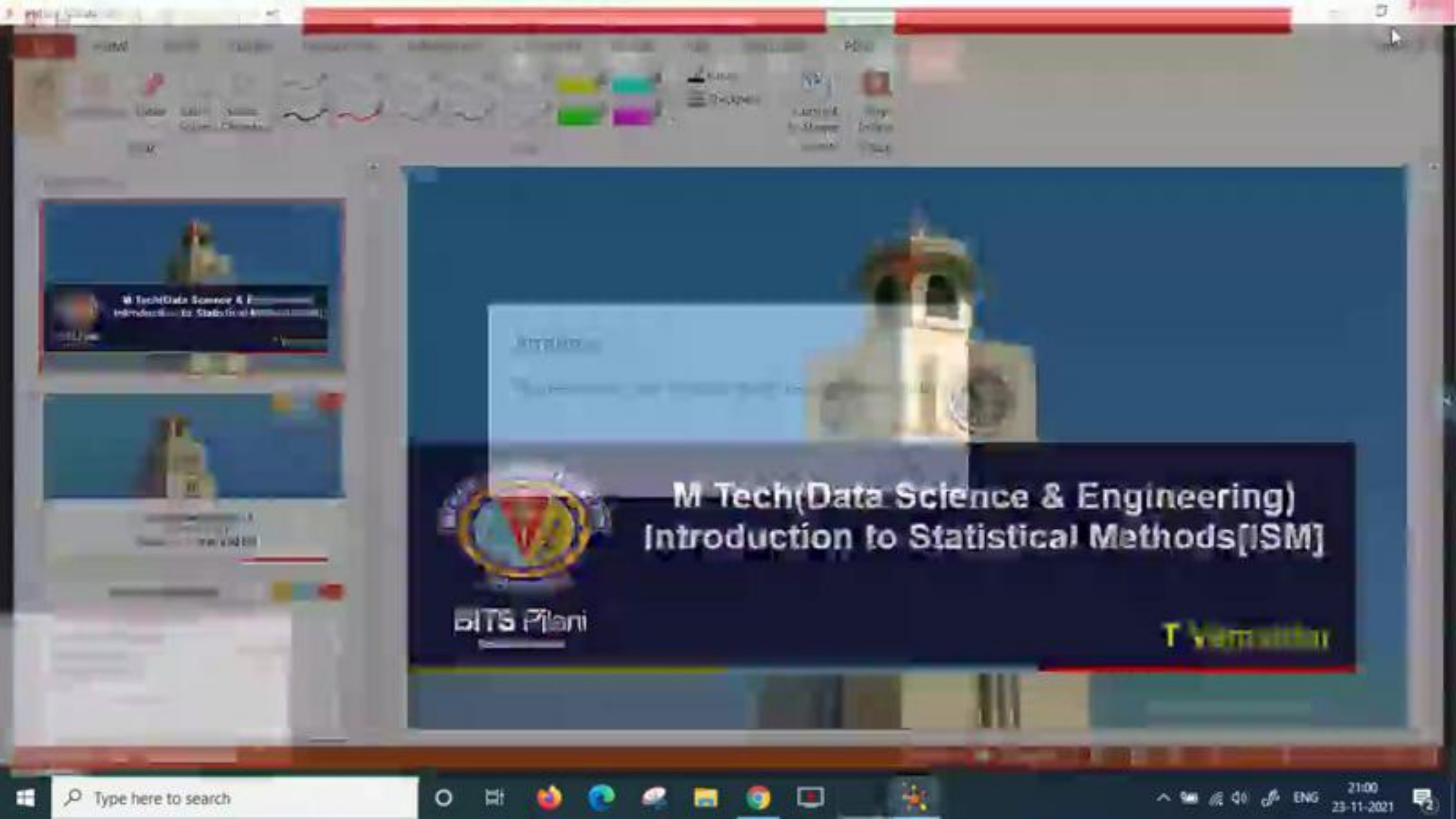
$$= P(W.C/L) = \frac{P[(W.C) \cap L]}{P[L]} = \frac{0.18}{0.41} = 0.4390$$

W.C

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

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

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