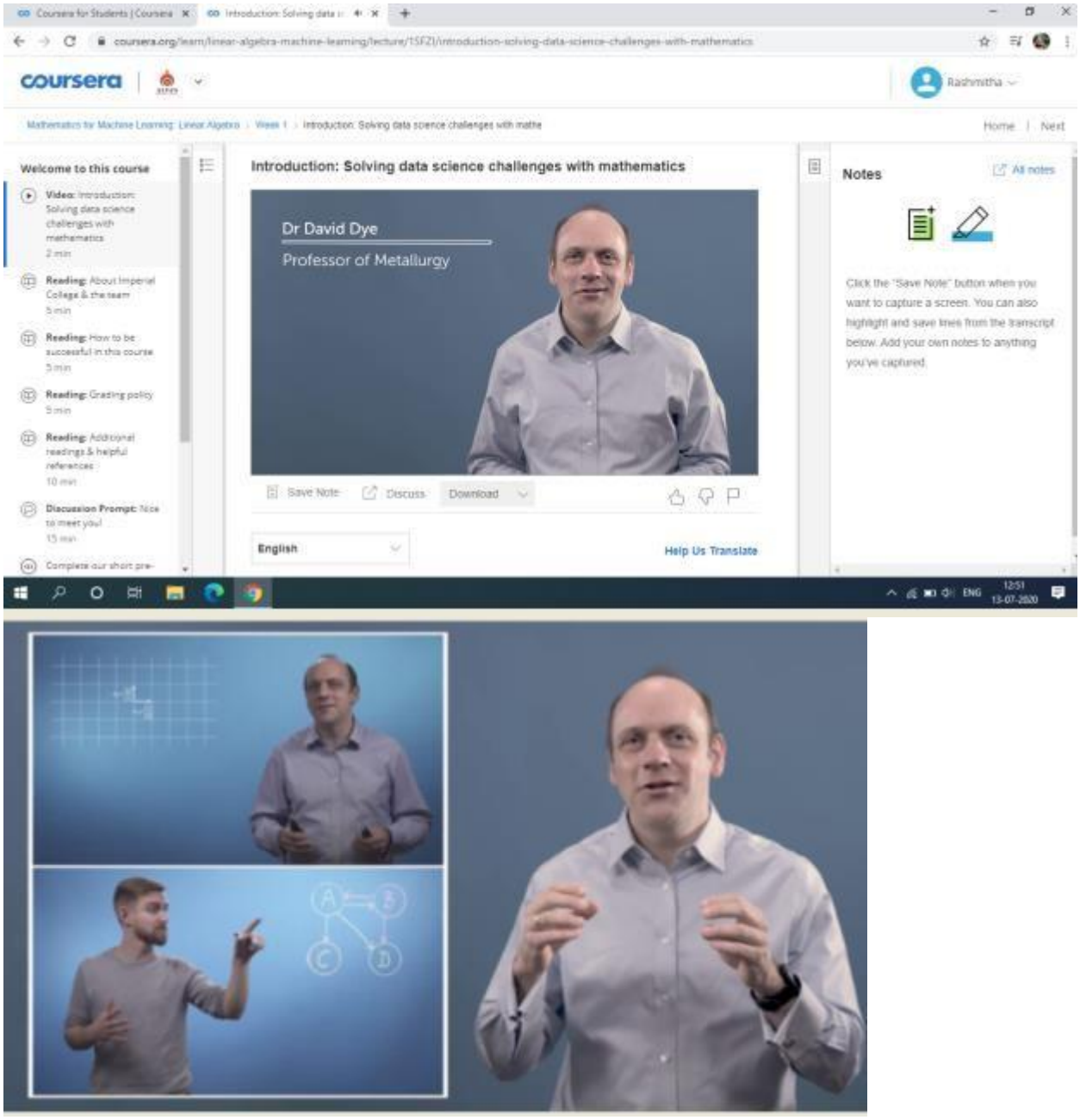
DAILY ASSESSMENT FORMAT

Date:	**13-07-2020**	**Name:**	Poorvi j
Course:	**coursera**	**USN:**	**4AL17EC083**
Topic:	**Mathematics for machine learning:Linear Algebra**	**Semester & Section:**	**6th sem 'B' sec**
Github Repository:	**Poorvi-2000**		

FORENOON SESSION DETAILS



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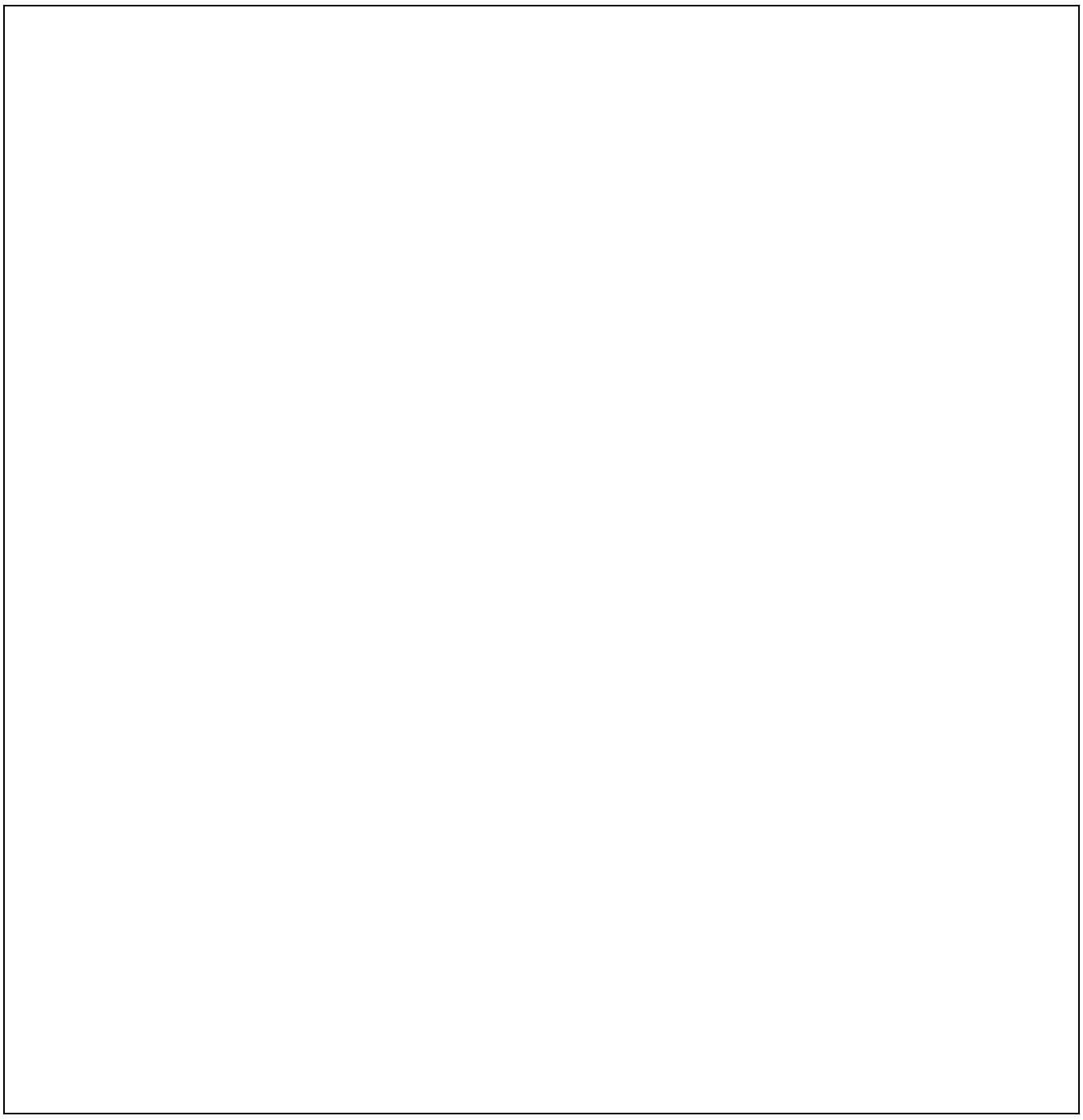

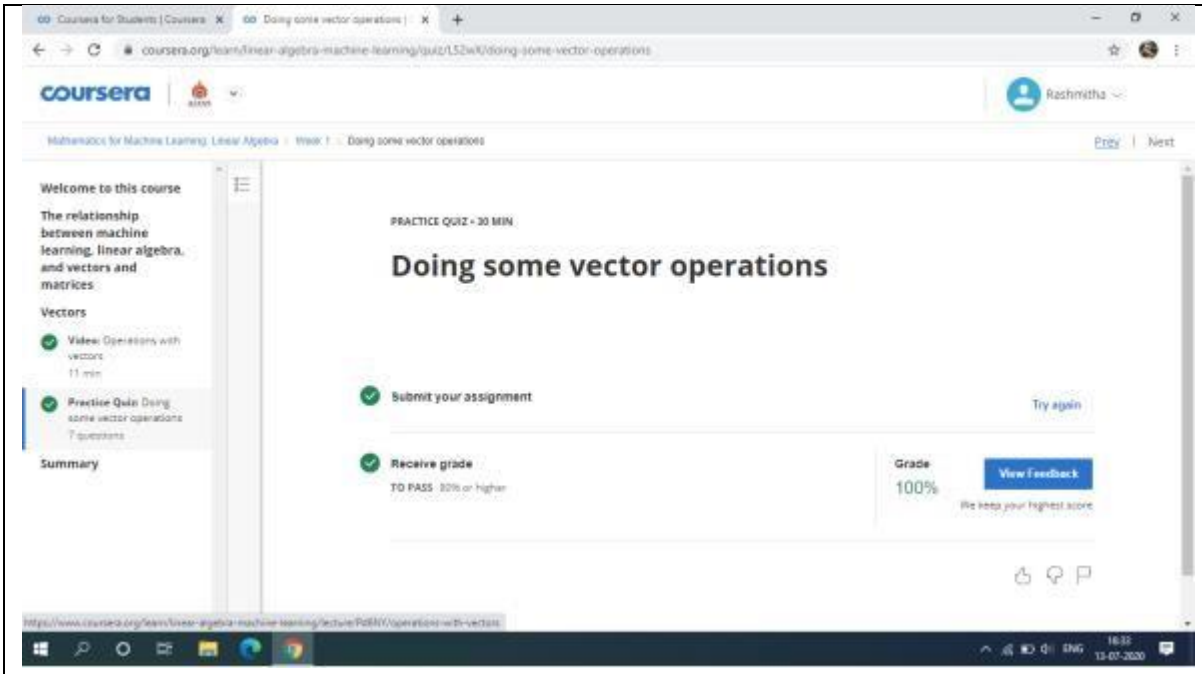
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100%
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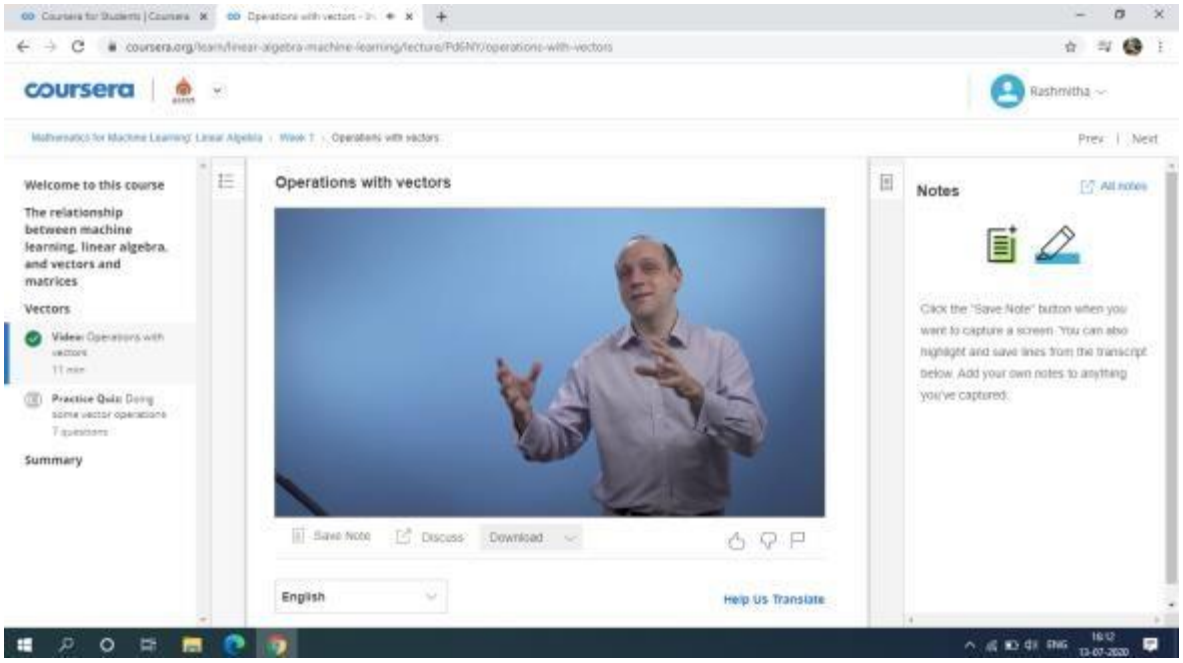
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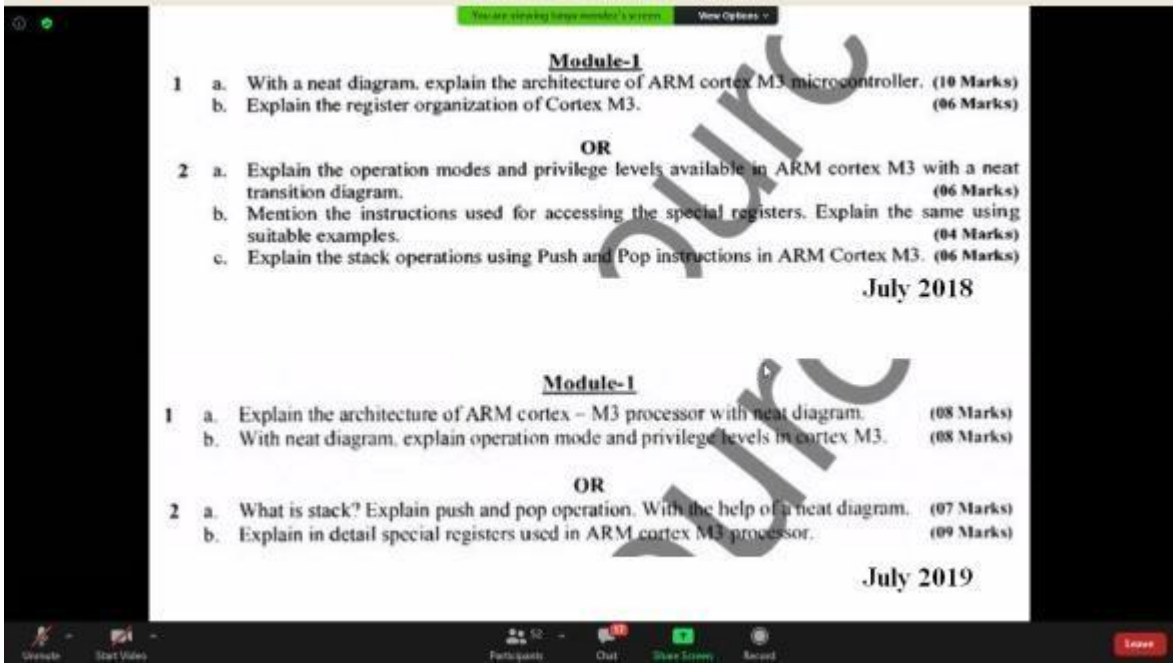
Machine learning is the latest in a long line of attempts to distill human knowledge and reasoning into a form that is suitable for constructing machines and engineering automated systems. As machine learning becomes more ubiquitous and its software packages become easier to use, it is natural and desirable that the low-level technical details are abstracted away and hidden from the practitioner. However, this brings with it the danger that a practitioner becomes unaware of the design decisions and, hence, the limits of machine learning algorithms. The enthusiastic practitioner who is interested to learn more about the magic behind successful machine learning algorithms currently faces a daunting set of pre-requisite knowledge: Programming languages and data analysis tools Large-scale computation and the associated frameworks Mathematics and statistics and how machine learning builds on it At universities, introductory courses on machine learning tend to spend early parts of the course covering some of these pre-requisites. For historical reasons, courses in machine learning tend to be taught in the computer science department, where students are often trained in the first two areas of knowledge, but not so much in mathematics and statistics. Current machine learning textbooks primarily focus on machine learning algorithms and methodologies and assume that the reader is competent in mathematics and statistics. Therefore, these books only spend one or two chapters of background mathematics, either at the beginning of the book or as appendices. We have found many people who want to delve into the foundations of basic machine learning methods who struggle with the mathematical knowledge required to read a machine learning textbook. Having taught undergraduate and graduate courses at universities, we find that the gap between high school mathematics and the mathematics level required to read a standard machine learning textbook is too big for many people. This book brings the mathematical foundations of basic machine learning concepts to the fore and collects the information in a single place so that this skills gap is narrowed or even closed.

Linear algebra is a sub-field of mathematics concerned with vectors, matrices, and linear transforms. It is a key foundation to the field of machine learning, from notations used to describe the operation of algorithms to the implementation of algorithms in code. In this course on Linear Algebra we look at what linear algebra is and how it relates to vectors and matrices. Then we look through what vectors and matrices are and how to work with them, including the knotty problem of eigenvalues and eigenvectors, and how to use these to solve problems. Finally we look at how to use these to do fun things with datasets - like how to rotate images of faces and how to extract eigenvectors to look at how the Pagerank algorithm works.

Since we're aiming at data-driven applications, we'll be implementing some of these ideas in code, not just on pencil and paper. Towards the end of the course, you'll write code blocks and encounter Jupyter notebooks in Python, but don't worry, these will be quite short, focussed on the concepts, and will guide you through if you've not coded before. At the end of this course you will have an intuitive understanding of vectors and matrices that will help you bridge the gap into linear algebra problems, and how to apply these concepts to machine learning.



Module-1

1 a. With a neat diagram, explain the architecture of ARM cortex M3 microcontroller. **(10 Marks)**
b. Explain the register organization of Cortex M3. **(06 Marks)**

OR

2 a. Explain the operation modes and privilege levels available in ARM cortex M3 with a neat transition diagram. **(06 Marks)**
b. Mention the instructions used for accessing the special registers. Explain the same using suitable examples. **(04 Marks)**
c. Explain the stack operations using Push and Pop instructions in ARM Cortex M3. **(06 Marks)**

July 2018

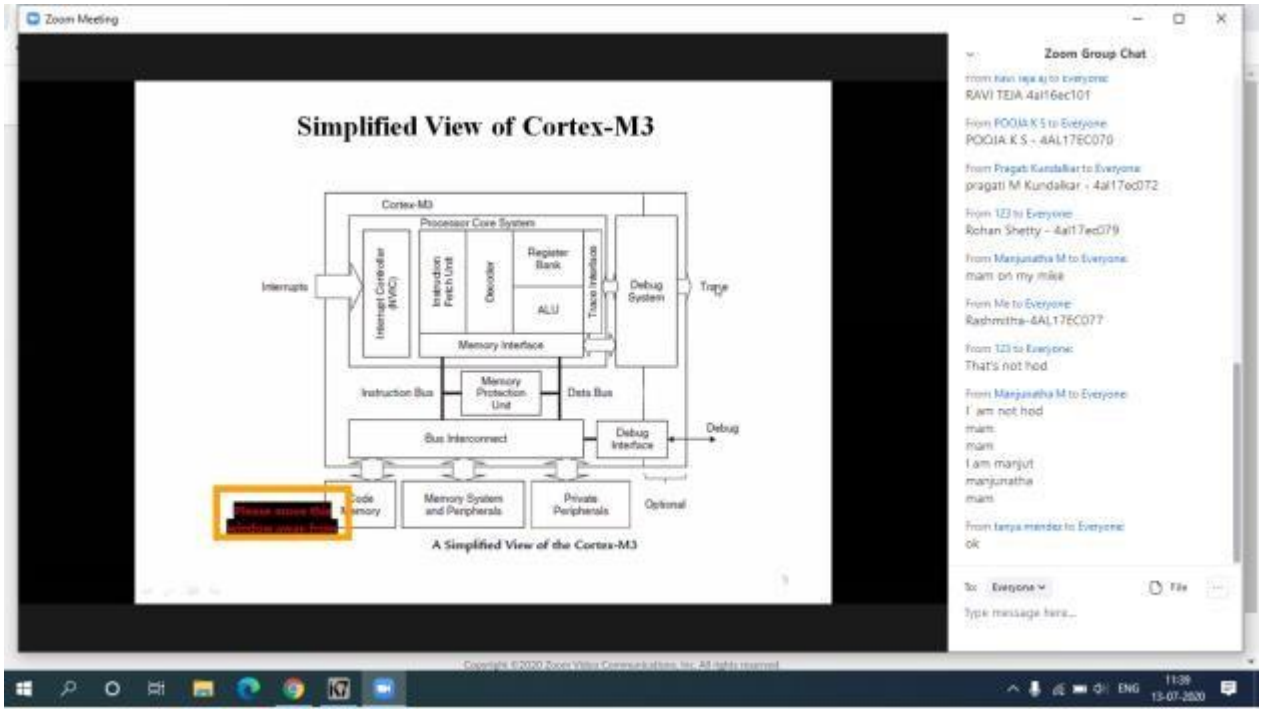
Module-1

1 a. Explain the architecture of ARM cortex – M3 processor with neat diagram. **(08 Marks)**
b. With neat diagram, explain operation mode and privilege levels in cortex M3. **(08 Marks)**

OR

2 a. What is stack? Explain push and pop operation. With the help of a neat diagram. **(07 Marks)**
b. Explain in detail special registers used in ARM cortex M3 processor. **(09 Marks)**

July 2019



Simplified view of cortex M3:

- Hardward architecture
- 32 bit architecture
- NVIC
- Memory protection unit
- R0-R12: general purpose register
- R13:stack pointer
- Program counter is used to hold the next instruction to be executed

- Special registers:
  1.program status registers
  2.interupt mask registers
  3.control status register

Feature of NVIC:

1. Nested interupt support
2. Vectored interupt support
3. Dynamic priority changes support
4. Reduction of interupt latency
5. Interupt masking

Application :

1. Consumer product
2. Automative parts
3. Real time system
4. Data communication
5. Industrial control

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AFTERNOON SESSION DETAILS
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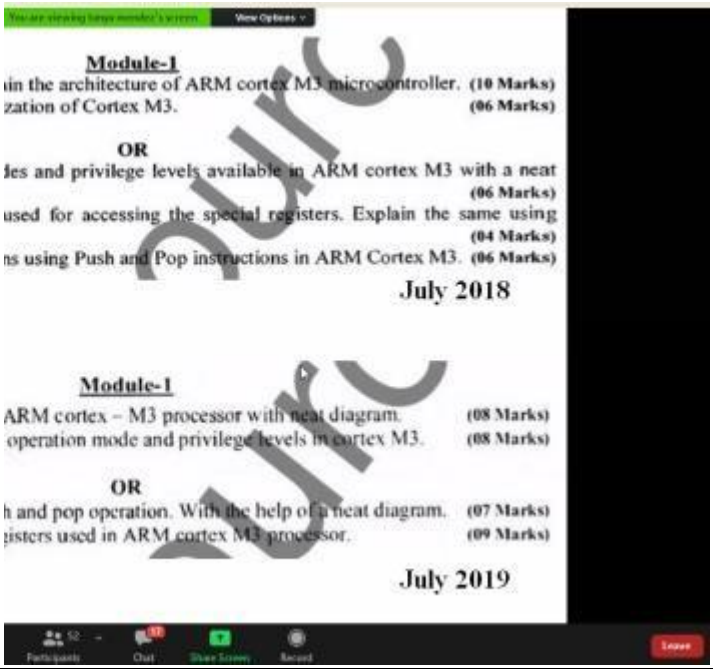

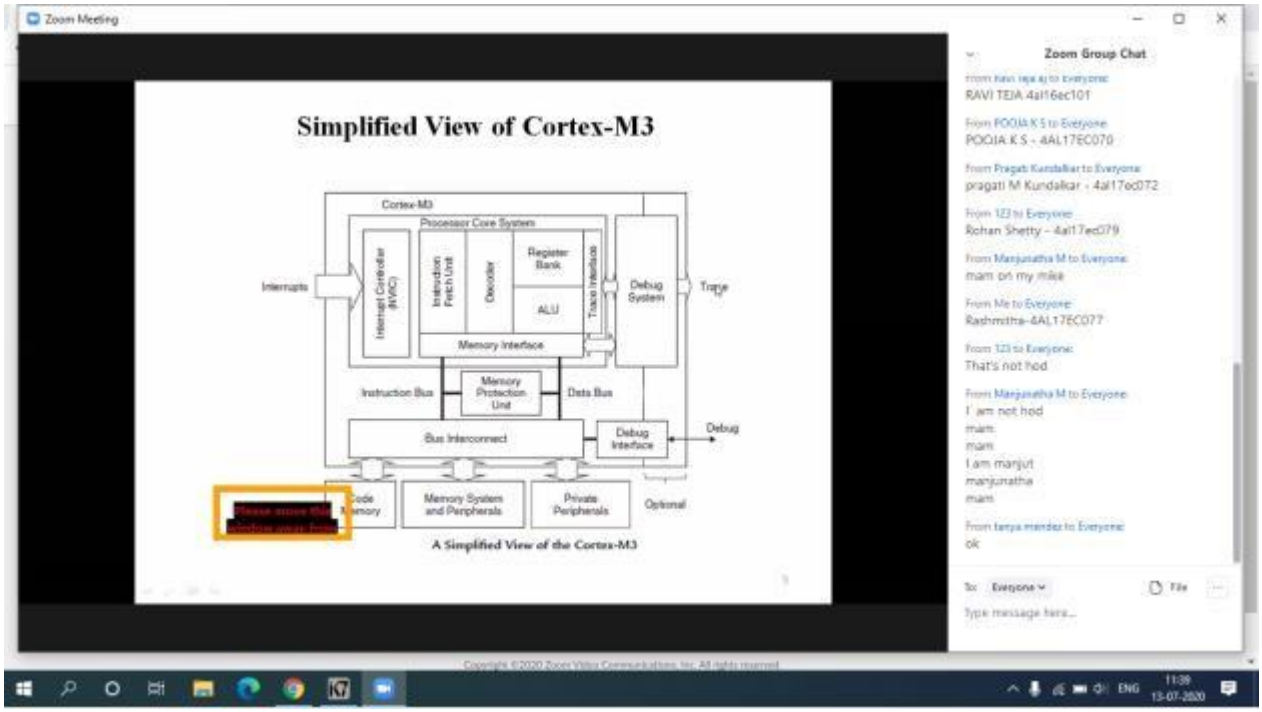

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Feature of NVIC:

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Webinar on "DRONE INDUSTRY INSIGHTS":


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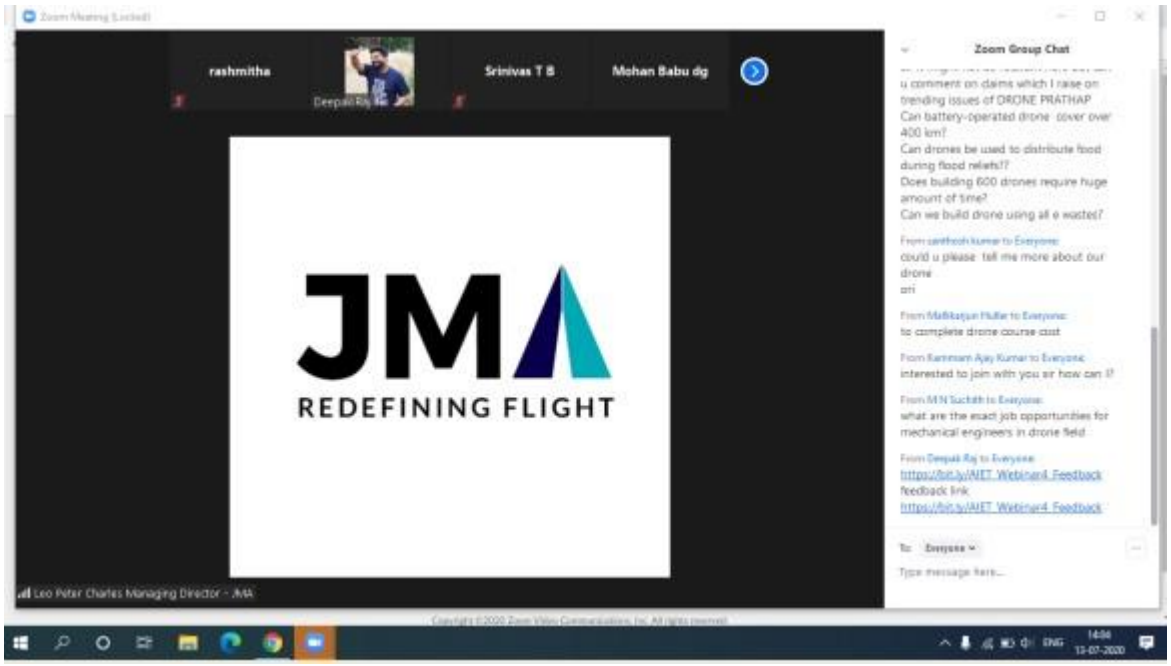
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OF PARTICIPATION

THIS IS TO CERTIFY THAT

Poorvi hj

from Alvas institution of engineering technology has participated in the webinar on "**DRONE INDUSTRY INSIGHTS**" held on **13 JULY 2020** as part of the webinar series on **"Future Ahead for Electronics Engineers"**

Mr. Leo Peter Charles	**Dr. D V Manjunatha**	**Dr. Peter Fernandes**
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Jane Aerospace Pvt Ltd	Dept. of ECE, AIET	AIET