DAILY ASSESSMENT REPORT

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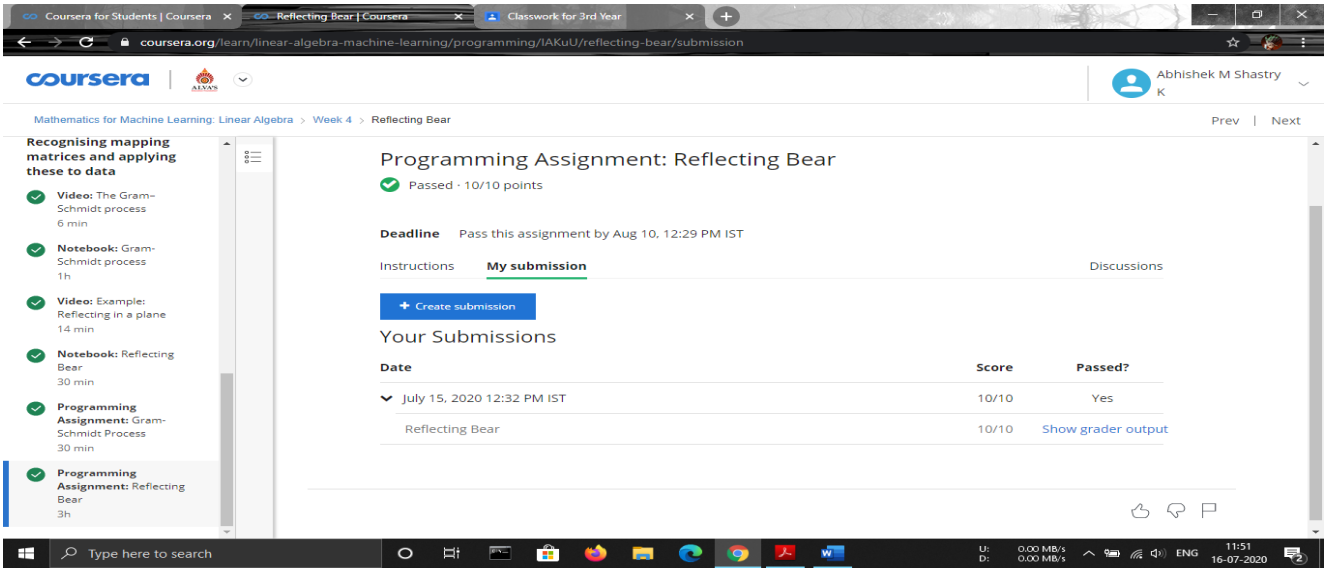
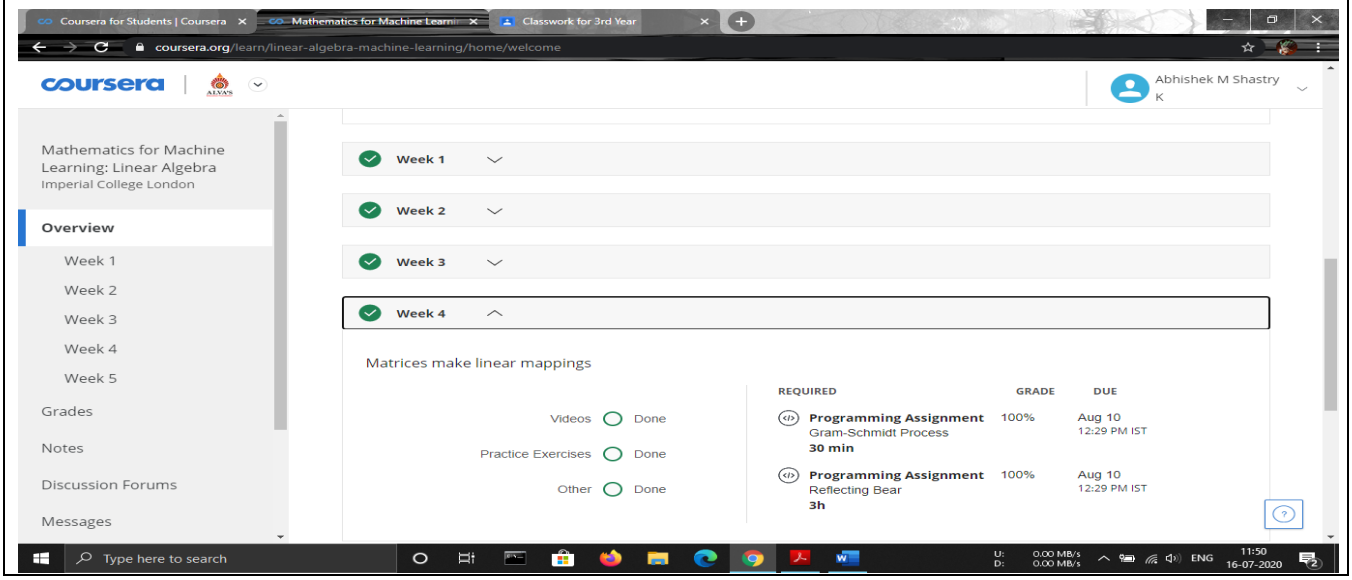
Course:	Mathematics for Machine Learning: Linear Algebra	USN:	4AL17EC002
Topic:	Week 4	Semester & Section:	6th 'A'
Github Repository:	AbhishekShastry-Courses		

SESSION DETAILS

Image of session





Report

Week 4

- Okay, so let's put all this together. Let's use our transformations knowledge and our basis knowledge in order to do something quite tricky. And see if we can't actually make our life quite simple.
- What I want to do here is know what a vector looks like when I reflect it in some funny plane. For example, the way this board works, when I write on the whiteboard here, if you're looking at it, all the writing would appear mirrored.
- But what we do to make that work is we reflect everything in post-production, left-right, and then everything comes out okay. The example we're going to do here asks what the reflection of Bear, say, something in a mirror would look like to me if the mirror was off at some funny angle.
- Now my first challenge is going to be that I don't know the plane of the mirror very well. But I do know two vectors in the mirror, (1, 1, 1) and (2, 0, 1).
- And I've got a third vector, which is out of the plane of the mirror, which is at (3, 1, -1), that's my third vector. So, I've got vectors v1, v2, and v3, and these two guys are in the plane of the mirror. We could draw it something like v1 and v2, and they're in some plane like this, and v3 is out of the plane. So, I have got v3 there, v1, and v2. So first let us do the Gram-Schmidt process and find some orthonormal vectors describing this plane and its normal v3.
- **Key Concepts**
    - ✓ Identify matrices as operators.
    - ✓ Relate the transformation matrix to a set of new basis vectors.
    - ✓ Formulate code for mappings based on these transformation matrices.
    - ✓ Write code to find an orthonormal basis set computationally.