**DAILY ASSESSMENT FORMAT**

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| **Date:** | **18-07-2020** | **Name:** | **Bhavith** |
| **Course:** | **Coursera** | **USN:** | **4AL17EC009** |
| **Topic:** | **Eigen values and eigen vectors.** | **Semester & Section:** | **6th,A** |
| **Github Repository:** | **Bhavith-Online-Courses** |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image of session**  **Screenshot (204)**  **Screenshot (205)** |
| **Report – Report can be typed or hand written for up to two pages.**   * **[Geometrically](https://en.wikipedia.org/wiki/Geometry" \o "Geometry), an eigenvector, corresponding to a [real](https://en.wikipedia.org/wiki/Real_number" \o "Real number) nonzero eigenvalue, points in a direction in which it is [stretched](https://en.wikipedia.org/wiki/Scaling_(geometry)" \o "Scaling (geometry)) by the transformation and the eigenvalue is the factor by which it is stretched. If the eigenvalue is negative, the direction is reversed. Loosely speaking, in a multidimensional [vector space](https://en.wikipedia.org/wiki/Vector_space" \o "Vector space), the eigenvector is not rotated. However, in a one-dimensional vector space, the concept of [rotation](https://en.wikipedia.org/wiki/Rotation" \o "Rotation) is meaningless.** * **Eigenvalues and eigenvectors feature prominently in the analysis of linear transformations. The prefix *[eigen-](https://en.wiktionary.org/wiki/eigen-" \o "wikt:eigen-)* is adopted from the [German](https://en.wikipedia.org/wiki/German_language" \o "German language) word *[eigen](https://en.wiktionary.org/wiki/eigen" \l "German" \o "wikt:eigen)* for "proper", "characteristic".Originally utilized to study [principal axes](https://en.wikipedia.org/wiki/Principal_axis_(mechanics)" \o "Principal axis (mechanics)) of the rotational motion of [rigid bodies](https://en.wikipedia.org/wiki/Rigid_body" \o "Rigid body), eigenvalues and eigenvectors have a wide range of applications, for example in [stability analysis](https://en.wikipedia.org/wiki/Stability_theory" \o "Stability theory), [vibration analysis](https://en.wikipedia.org/wiki/Vibration_analysis" \l "eigenvalue_problem" \o "Vibration analysis), [atomic orbitals](https://en.wikipedia.org/wiki/Atomic_orbital" \o "Atomic orbital), [facial recognition](https://en.wikipedia.org/wiki/Eigenface" \o "Eigenface), and [matrix diagonalization](https://en.wikipedia.org/wiki/Eigendecomposition_of_a_matrix" \o "Eigendecomposition of a matrix).** * **In essence, an eigenvector v of a linear transformation *T* is a nonzero vector that, when *T* is applied to it, does not change direction. Applying *T* to the eigenvector only scales the eigenvector by the scalar value *λ*, called an eigenvalue. This condition can be written as the equation** * **referred to as the eigenvalue equation or eigenequation. In general, *λ* may be any [scalar](https://en.wikipedia.org/wiki/Scalar_(mathematics)" \o "Scalar (mathematics)). For example, *λ* may be negative, in which case the eigenvector reverses direction as part of the scaling, or it may be zero or [complex](https://en.wikipedia.org/wiki/Complex_number" \o "Complex number).** |