**DAILY ASSESSMENT FORMAT**

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| **Date:** | 17 July 2020 | **Name:** | Anupama J S |
| **Course:** | Coursera | **USN:** | 4AL16EC005 |
| **Topic:** | Mathematics of machine learning-Linear algebra | **Semester & Section:** | 8th sem “A”section |
| **Github Repository:** | AnupamaJS |  |  |

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| **FORENOON SESSION DETAILS** |
| C:\Users\User\Pictures\a (2).pngOrthogonal Matrix A n×n matrix A is an orthogonal matrix if   |  | | --- | | AA^(T)=I, |   where A^(T) is the [transpose](https://mathworld.wolfram.com/Transpose.html) of A and I is the [identity matrix](https://mathworld.wolfram.com/IdentityMatrix.html). In particular, an orthogonal matrix is always invertible, and   |  |  | | --- | --- | | A^(-1)=A^(T). |  |   In component form,   |  | | --- | | (a^(-1))_(ij)=a_(ji). |   This relation make orthogonal matrices particularly easy to compute with, since the transpose operation is much simpler than computing an inverse.  For example,   |  |  |  | | --- | --- | --- | | A | = | 1/(sqrt(2))[1  1; 1 -1] | | B | = | 1/3[2 -2  1; 1  2  2; 2  1 -2] |   are orthogonal matrices. A matrix m can be tested to see if it is orthogonal using the [Wolfram Language](https://www.wolfram.com/language/) code:  OrthogonalMatrixQ[m\_List?MatrixQ] :=  (Transpose[m].m == IdentityMatrix @ Length @ m)  The rows of an orthogonal matrix are an [orthonormal basis](https://mathworld.wolfram.com/OrthonormalBasis.html). That is, each row has length one, and are mutually perpendicular. Similarly, the columns are also an orthonormal basis. In fact, given any orthonormal basis, the matrix whose rows are that basis is an orthogonal matrix. It is automatically the case that the columns are another orthonormal basis.  The orthogonal matrices are precisely those matrices which preserve the [inner product](https://mathworld.wolfram.com/InnerProduct.html)   |  |  | | --- | --- | | <v,w>=<Av,Aw>. |  |   Also, the [determinant](https://mathworld.wolfram.com/Determinant.html) of A is either 1 or -1. As a subset of R^(n^2), the orthogonal matrices are not [connected](https://mathworld.wolfram.com/Connected.html) since the [determinant](https://mathworld.wolfram.com/Determinant.html) is a [continuous function](https://mathworld.wolfram.com/ContinuousFunction.html). Instead, there are two [components](https://mathworld.wolfram.com/Component.html) corresponding to whether the determinant is 1 or -1. The orthogonal matrices with detA=1 are rotations, and such a matrix is called a [special orthogonal matrix](https://mathworld.wolfram.com/SpecialOrthogonalMatrix.html).  The [matrix product](https://mathworld.wolfram.com/MatrixProduct.html) of two orthogonal matrices is another orthogonal matrix. In addition, the inverse of an orthogonal matrix is an orthogonal matrix, as is the [identity matrix](https://mathworld.wolfram.com/IdentityMatrix.html). Hence the set of orthogonal matrices form a [group](https://mathworld.wolfram.com/Group.html), called the [orthogonal group](https://mathworld.wolfram.com/OrthogonalGroup.html) O(n). Gram-Schmidt Orthogonalisation Process Let $ V$ be a finite dimensional inner product space. Suppose $ {\mathbf u}_1, {\mathbf u}_2, \ldots, {\mathbf u}_n$ is a linearly independent subset of $ V.$ Then the Gram-Schmidt orthogonalisation process uses the vectors $ {\mathbf u}_1, {\mathbf u}_2, \ldots, {\mathbf u}_n$ to construct new vectors $ {\mathbf v}_1, {\mathbf v}_2, \ldots, {\mathbf v}_n$ such that $ \langle {\mathbf v}_i, {\mathbf v}_j \rangle = 0$ for $ i \neq j,$ $ \Vert {\mathbf v}_i \Vert = 1$ and $ {\mbox{Span }} \{{\mathbf u}_1, {\mathbf u}_2, \ldots, {\mathbf u}_i \} = {\mbox{Span }} \{{\mathbf v}_1, {\mathbf v}_2, \ldots, {\mathbf v}_i \}$ for $ i=1,2,\ldots,n.$ This process proceeds with the following idea.   |  | | --- | | \includegraphics[scale=1]{gramschmidt.eps} | | **Figure 5.1:** Gram-Schmidt Process |   Suppose we are given two vectors $ {\mathbf u}$ and $ {\mathbf v}$ in a plane. If we want to get vectors $ {\mathbf z}$ and $ {\mathbf y}$ such that $ {\mathbf z}$ is a unit vector in the direction of $ {\mathbf u}$ and $ {\mathbf y}$ is a unit vector perpendicular to $ {\mathbf z},$ then they can be obtained in the following way: Take the first vector $ {\mathbf z}= \displaystyle \frac{{\mathbf u}}{ \Vert {\mathbf u}\Vert}.$ Let $ \theta$ be the angle between the vectors $ {\mathbf u}$ and $ {\mathbf v}.$ Then $ \cos(\theta) = \displaystyle \frac{\langle {\mathbf u}, {\mathbf v}\rangle}{\Vert u \Vert \; \Vert v \Vert }.$ Defined $ \alpha = \Vert {\mathbf v}\Vert \; \cos(\theta) = \displaystyle\frac{\langle {... ...v}\rangle}{ \Vert {\mathbf u}\Vert} = \langle {\mathbf z}, {\mathbf v}\rangle .$ Then $ {\mathbf w}= {\mathbf v}- \alpha \; {\mathbf z}$ is a vector perpendicular to the unit vector $ {\mathbf z}$ , as we have removed the component of $ {\mathbf z}$ from $ {\mathbf v}$ . So, the vectors that we are interested in are $ {\mathbf z}$ and $ {\mathbf y}= \displaystyle \frac{{\mathbf w}}{\Vert {\mathbf w}\Vert}.$  This idea is used to give the Gram-Schmidt Orthogonalisation process which we now describe.  **THEOREM 5.2.1 (Gram-Schmidt Orthogonalisation Process)*****Let $ V$ be an inner product space. Suppose $ \{{\mathbf u}_1, {\mathbf u}_2, \ldots, {\mathbf u}_n\} $ is a set of linearly independent vectors of $ V.$ Then there exists a set $ \{{\mathbf v}_1, {\mathbf v}_2, \ldots, {\mathbf v}_n \}$ of vectors of $ V$ satisfying the following:***   1. $ \Vert {\mathbf v}_i \Vert = 1$ for $ 1 \leq i \leq n,$ 2. $ \langle {\mathbf v}_i, {\mathbf v}_j    \rangle = 0$ for $ 1 \leq i, j \leq n, \; i \ne j$ and 3. $ L ({\mathbf v}_1, {\mathbf v}_2, \ldots, {\mathbf v}_i) = L ( {\mathbf u}_1, {\mathbf u}_2,    \ldots, {\mathbf u}_i)$ for $ 1 \leq i \leq n.$ |

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| **Date:** | 17 July 2020 | **Name:** | Anupama J S |
| **Course:** | Sales force | **USN:** | 4AL16EC005 |
| **Topic:** | Build an App to Track Your Trailblazer Journey | **Semester & Section:** | 8th sem “A”section |
| **Github Repository:** | AnupamaJS |  |  |
| **AFTERNOON SESSION DETAILS** | | | |
| C:\Users\User\Pictures\Screenshots\Screenshot (313).pngC:\Users\User\Pictures\Screenshots\Screenshot (314).pngC:\Users\User\Pictures\Screenshots\Screenshot (315).pngLearning Objectives In this project, you’ll:   * Discover the types of roles available in the Salesforce ecosystem. * Create an app to track what you’re learning as you discover Salesforce ecosystem opportunities. * Add a custom object, custom fields, a report, and a report chart to your app. * Learn how to use your app on a mobile device.  Hello. We’re Salesforce. It’s nice to meet you. We’re Salesforce, a cloud computing pioneer, and as a global, fast-growing company, we now help companies worldwide to connect with their customers. We’re a customer company, meaning we put our customers at the center of everything we do. And what we sell helps other companies do that, too.  We view our customers, partners, employees, and communities as part of our family (we use the word “Ohana”). We’re a values-driven company, and we give back through our [1-1-1 model](https://www.salesforce.org/), which means we donate 1% of our product, 1% of our time, and 1% of our resources to nonprofit organizations. You can learn more about our culture and values in the [Salesforce Ohana Culture](https://trailhead.salesforce.com/en/content/learn/modules/manage_the_sfdc_way_ohana" \t "_blank) badge.  Founded in 1999 in San Francisco, Salesforce has grown at a phenomenal rate to become the world’s fourth-largest software company (at the time of this writing).  As part of our growth, an ecosystem of other companies, users, and experts extends beyond our own employees to help companies use Salesforce. So even if you don’t work for Salesforce in the future, you could very well get a job working with Salesforce. And that’s what the Salesforce ecosystem is all about. Meet the Salesforce Ecosystem As businesses embrace the future of mobile, robotics, IoT, and AI, Salesforce skills are becoming some of the hottest skills to have on your resume, and that demand is growing. In fact, [according to IDC](https://www.salesforce.com/blog/2017/10/salesforce-economy-idc-study-2022), Salesforce and our broader ecosystem will create over 3 million jobs by 2022.  So as you are exploring career opportunities, it’s important to consider which jobs and industries are experiencing the highest growth. The next step is to review the roles themselves and determine which ones match up best with your interests. Download the Free Career Exploration Resources Pack Not sure what type of role interests you? Do the worksheets in our free career exploration resources pack and discover more about your career goals and interests. Create the Object ModelTrack Your Discoveries In the previous step, you found a number of web pages for careers in the Salesforce ecosystem. As you continue on your journey, you’re going to find other resources you want to track, like blogs, websites, podcasts, events, and more. So let’s build an app on the Salesforce Platform to track all of those resources. Build a Custom Object Start by creating a custom object, Discovery, to track all of the resources you discover on your learning journey.   1. Click Setup and select **Setup**. 2. Click **Object Manager**. 3. Click **Create** and select **Custom Object**. 4. Create an object as follows:    * Label: Discovery    * Plural Label: Discoveries    * Object Name: Discovery    * Record Name: Discovery Name    * Under Optional Features, select **Allow Reports.**    * Under Object Creation Options (available only when a custom object is first created), select **Launch New Custom Tab Wizard after saving this custom object**. 5. Click **Save**.   This directs you to the New Custom Object Tab screen. Next, let’s make the tab. Make a Custom Tab If the tab wizard didn’t automatically launch, that’s OK. Enter Tabs in Quick Find and select **Tabs**. In the Custom Object Tabs section, click **New**.  Follow these steps to create a tab for your custom object.   1. If it isn’t already selected, for Object, select **Discovery**. 2. Click **Tab Style** and choose any image. How about a compass? 3. Click **Next**, **Next**, and **Save**.  Use Your App on the GoTake It on the Road Your app is created! The final step is to make sure you can add discoveries to your app from your mobile device, so that no matter where you are, you can keep track of great resources you find related to your Salesforce journey. Create a User Create a username and password you will remember, so you can sign in to Salesforce mobile and use your new app.   1. From Setup, enter Users in Quick Find and select **Users**. 2. Click **New User**. 3. Create a new user as follows:    * Enter your first and last name.    * Enter a unique alias.    * Enter a valid email address.    * Enter a unique username. Your username should be formed like an email address, but it does not need to be a valid email address. For example, you can create a username like anyname@mycareer.com or anything@notarealemail.com.    * Enter a unique nickname.    * For User License, select **Salesforce**, then for Profile, select **System Administrator**. If a Salesforce license isn't available, select the **Salesforce Platform** license and the **Salesforce Platform User** profile.    * For Role, select **CEO**. 4. Click **Save.** 5. Check your email for an activation email. Click the link in the email and set your password.   Now you have a username and password to access your app easily. Install the Salesforce Mobile App Always run the mobile app on a device that meets minimum platform [requirements](https://help.salesforce.com/HTViewHelpDoc?id=sf1_requirements.htm&language=en_US). If you have an Android or iOS device that meets the minimum requirements, you can use the downloadable Salesforce mobile app available from the App Store® or Google Play™.  Once you have the app installed on your mobile device, use the username and password you created to sign in.  If you are unable to install the app, run the browser version of the mobile app by opening a browser window on your mobile device and logging in at login.salesforce.com. | | | |