**kNN (k-Nearest Neighbors)**

* Have you ever seen movies categorized into genres?
* What defines these genres, and who says which movie goes into what genre?
* The movies in one genre are similar but based on what?
* What makes an action movie similar to another action movies and dissimilar to a romance movie?

Do people kiss in action movies, and do people kick in romance movies? Yes, but there’s probably more kissing in romance movies and more kicking in action movies. Perhaps if you measured kisses, kicks, and other things per movie, you could automatically figure out what genre a movie belongs to.

We’ll use movie to explain some of the concepts of ***k-Nearest Neighbors***, then we’ll move on to another examples.

k-Nearest Neighbors is easy to grasp and very effective.

**Classifying with distance measurements**

|  |  |
| --- | --- |
| **Pros** | **Cons** |
| * High accuracy * Insensitive to outliers * No assumptions about data | * Computationally expensive * Requires a lot of memory |

**Woks With:** Numeric Value, Nominal values (Categorial Values)

Let’s go through a quick example to classify movies into romance or action movies. Assume that, someone watched a lot of movies and counted the number of kicks and kisses in each movie. I’ve plotted six movies by the number of kisses and kicks in each movie:

Now, you can see a question mark (?) in the graph, this is the movie that you haven’t seen yet and want to know if it’s a romance movie or an action movie. To determine this, we’ll use the kNN algorithm.

Remember, in every machine learning algorithm, we start with data:

|  |  |  |  |
| --- | --- | --- | --- |
| **Movie Title** | **# of Kicks** | **# of Kisses** | **Type** |
| Avenger | 50 | 4 | Action |
| Batman | 40 | 7 | Action |
| Spiderman | 35 | 13 | Action |
| In the mood for love | 7 | 35 | Romance |
| Moonlight | 12 | 55 | Romance |
| Beautiful Woman | 20 | 60 | Romance |
| ? | 23 | 45 | Unknown |

We don’t know what type of movie the *“question mark”* movie is, but we have a way of figuring that out. First, we calculate the distance to all the other movies. Below is the table which shows the distance of other movies from the “***question******mark***”:

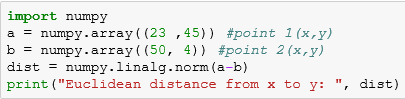
|  |  |
| --- | --- |
| **Data Labels** | **Distance from ?** |
| Avenger | **49.09175083** |
| Batman | **41.62931659** |
| Spiderman | **34.17601498** |
| In the mood for love | **18.86796226** |
| Moonlight | **14.86606875** |
| Beautiful Woman | **15.29705854** |

**Graph to show the distance of each movie from the unknown movie:**

![A close up of a map

Description automatically generated](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAYABgAAD/4RD+RXhpZgAATU0AKgAAAAgABQESAAMAAAABAAEAAAE7AAIAAAANAAAIVodpAAQAAAABAAAIZJydAAEAAAAaAAAQ3OocAAcAAAgMAAAASgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAEF6YWQsIEFhdGlzaAAAAAWQAwACAAAAFAAAELKQBAACAAAAFAAAEMaSkQACAAAAAzEwAACSkgACAAAAAzEwAADqHAAHAAAIDAAACKYAAAAAHOoAAAAIAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAyMDIwOjA5OjE5IDE3OjQwOjA0ADIwMjA6MDk6MTkgMTc6NDA6MDQAAABBAHoAYQBkACwAIABBAGEAdABpAHMAaAAAAP/hCx9odHRwOi8vbnMuYWRvYmUuY29tL3hhcC8xLjAvADw/eHBhY2tldCBiZWdpbj0n77u/JyBpZD0nVzVNME1wQ2VoaUh6cmVTek5UY3prYzlkJz8+DQo8eDp4bXBtZXRhIHhtbG5zOng9ImFkb2JlOm5zOm1ldGEvIj48cmRmOlJERiB4bWxuczpyZGY9Imh0dHA6Ly93d3cudzMub3JnLzE5OTkvMDIvMjItcmRmLXN5bnRheC1ucyMiPjxyZGY6RGVzY3JpcHRpb24gcmRmOmFib3V0PSJ1dWlkOmZhZjViZGQ1LWJhM2QtMTFkYS1hZDMxLWQzM2Q3NTE4MmYxYiIgeG1sbnM6ZGM9Imh0dHA6Ly9wdXJsLm9yZy9kYy9lbGVtZW50cy8xLjEvIi8+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczp4bXA9Imh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8iPjx4bXA6Q3JlYXRlRGF0ZT4yMDIwLTA5LTE5VDE3OjQwOjA0LjEwMzwveG1wOkNyZWF0ZURhdGU+PC9yZGY6RGVzY3JpcHRpb24+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iPjxkYzpjcmVhdG9yPjxyZGY6U2VxIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpsaT5BemFkLCBBYXRpc2g8L3JkZjpsaT48L3JkZjpTZXE+DQoJCQk8L2RjOmNyZWF0b3I+PC9yZGY6RGVzY3JpcHRpb24+PC9yZGY6UkRGPjwveDp4bXBtZXRhPg0KICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICA8P3hwYWNrZXQgZW5kPSd3Jz8+/9sAQwACAQECAQECAgICAgICAgMFAwMDAwMGBAQDBQcGBwcHBgcHCAkLCQgICggHBwoNCgoLDAwMDAcJDg8NDA4LDAwM/9sAQwECAgIDAwMGAwMGDAgHCAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwM/8AAEQgBsgNaAwEiAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8A/Zzwb+yH8MLfR2S38A+FbOCO5ulSG206O3jj/fyfdjT5K2D+yP8ADPP/ACJGgf8AgKK7Twmf+JbJ/wBfl1/6Pkry/wCPvxt8bfB3VtLk0/wf4V17SNV1Sy0i0d/E89pqNxPcSBDstvsTx/IN8h/f8pG54oD4Td/4ZH+GP/QkaB/4C0f8Mj/DH/oSNA/8Ba5L4TftbXXxB8d6DbXXhW10vwz4zk1OLw3qSap59zefYpNj+fbGGPyfMRXkj8uSf5EO/wAuvdKAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/DI/wx/6EjQP/AWvR6KAPOP+GR/hj/0JGgf+AtH/AAyP8Mf+hI0D/wABa9HooA84/wCGR/hj/wBCRoH/AIC0f8Mj/DH/AKEjQP8AwFr0eigDzj/hkf4Y/wDQkaB/4C0f8Mj/AAx/6EjQP/AWvR6KAPKPE37Kfw4sfDmoXEfgvw+lxb20jo/2Xo+w10f/AAzl8Pf+hD8G/wDgktf/AIiug8bf8ijqv/XjP/6Aa1KAMfwdIZtFkdlkjaS6uvlf+D9/JXM+KvhD/wAJh8afCfiq7v2+w+EIb02enCAgPeTokP2pn34Jjg8+NE2f8vEhz0rqvCf/ACC5P+vy6/8AR8lalAHhPwl/ZI1D4b+MvD8114qi1bw94Ll1OTw7p6aV9nuIPt0hd/tU5mfz/LRnRDHHDw/z7+K92oooA5vQPDGm6jZzS3Gn2c0zXl1uaaBHf/Xyd60P+EL0j/oE6b/4Cp/hR4T/AOQXJ/1+XX/o+StSgDL/AOEL0j/oE6b/AOAqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/wrUooAy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8K1KKAMv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAK1KKAMv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8K1KKAMv/hC9I/6BOm/+Aqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/AAhekf8AQJ03/wABU/wrUooA5jxZ4T0u08K6pJHpunxyR2szo62yfu/kNaf/AAhuj/8AQK0v/wABU/wo8bf8ijqv/XjP/wCgGtSgDL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/wrUooAy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8K1KKAMv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAK1KKAMv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8K1KKAMv/hC9I/6BOm/+Aqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/AAhekf8AQJ03/wABU/wrUooAy/8AhC9I/wCgTpv/AICp/hR/whekf9AnTf8AwFT/AArUooAy/wDhC9I/6BOm/wDgKn+FZt14T0s+KrOP+zdP2yWs7sn2ZOfngrpqy7v/AJHCx/68rn/0OCgA/wCEL0j/AKBOm/8AgKn+FH/CF6R/0CdN/wDAVP8ACtSigDL/AOEL0j/oE6b/AOAqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/wrUooAy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8K1KKAMv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAK1KKAMv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8K1KKAMv/hC9I/6BOm/+Aqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/AAhekf8AQJ03/wABU/wrUooA5nw14S0u506Tfpunt/pV0nzWyf8APeStL/hC9I/6BOm/+Aqf4UeEv+QbP/1+3X/o+StSgDL/AOEL0j/oE6b/AOAqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/wrUooAy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8K1KKAMv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAK1KKAMv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8K1KKAMv/hC9I/6BOm/+Aqf4Uf8IXpH/QJ03/wFT/CtSigDL/4QvSP+gTpv/gKn+FH/AAhekf8AQJ03/wABU/wrUooA5nxV4U0u28L6jJHpunxvHbSOjrap+7+StL/hDdH/AOgVpf8A4Cp/hSeMv+RS1T/rym/9ANatAGX/AMIXpH/QJ03/AMBU/wAKP+EL0j/oE6b/AOAqf4VqUUAZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FalFAGX/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hWpRQBl/8ACF6R/wBAnTf/AAFT/Cj/AIQvSP8AoE6b/wCAqf4VqUUAZf8Awhekf9AnTf8AwFT/AAo/4QvSP+gTpv8A4Cp/hWpRQBl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4VqUUAZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FalFAGX/wAIXpH/AECdN/8AAVP8KzbrwnpZ8VWcf9m6ftktZ3ZPsyc/PBXTVl3f/I4WP/Xlc/8AocFAB/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hWpRQBl/8ACF6R/wBAnTf/AAFT/Cj/AIQvSP8AoE6b/wCAqf4VqUUAZf8Awhekf9AnTf8AwFT/AAo/4QvSP+gTpv8A4Cp/hWpRQBl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4VqUUAZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FalFAGX/wAIXpH/AECdN/8AAVP8KP8AhC9I/wCgTpv/AICp/hWpRQBl/wDCF6R/0CdN/wDAVP8ACj/hC9I/6BOm/wDgKn+FalFAGX/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hWpRQBieF7WHT7zWIYIo4YY7wbURNiL+4hrbrK0T/AJCetf8AX8n/AKTwVq0AZfjb/kUdV/68Z/8A0A1H/wAJJe/9AHVf+/lr/wDHqk8bf8ijqv8A14z/APoBrUoAy/Cf/ILk/wCvy6/9HyVqVj+DozBosis0kjR3V18z/wAf7+StigAooooAy/Cf/ILk/wCvy6/9HyVqVl+E/wDkFyf9fl1/6PkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvxt/wAijqv/AF4z/wDoBrUrL8bf8ijqv/XjP/6Aa1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigArLu/8AkcLH/ryuf/Q4K1Ky7v8A5HCx/wCvK5/9DgoA1KKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDL8Jf8g2f/r9uv/R8lalZfhL/AJBs/wD1+3X/AKPkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMrxl/yKWqf9eU3/AKAa1ayvGX/Ipap/15Tf+gGtWgAooooAKKKKACiiigAooooAKKKKACiiigAooooAKy7v/kcLH/ryuf8A0OCtSsu7/wCRwsf+vK5/9DgoA1KKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDK0T/kJ61/1/J/6TwVq1laJ/yE9a/wCv5P8A0ngrVoAy/G3/ACKOq/8AXjP/AOgGtSsvxt/yKOq/9eM//oBqP/hG73/oPar/AN+7X/4zQBJ4T/5Bcn/X5df+j5K1Kx/B10lzokk0LxyRyXVy6Mn8f7+StigAooooAy/Cf/ILk/6/Lr/0fJWpWX4T/wCQXJ/1+XX/AKPkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvxt/yKOq/9eM//AKAa1Ky/G3/Io6r/ANeM/wD6Aa1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigArLu/+Rwsf+vK5/wDQ4K1M1l3f/I4WP/Xlc/8AocFAGpRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZfhL/kGz/wDX7df+j5K1Ky/CX/INn/6/br/0fJWpQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZXjL/AJFLVP8Arym/9ANatZXjL/kUtU/68pv/AEA1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/wDI4WP/AF5XP/ocFalZd3/yOFj/ANeVz/6HBQBqUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAGVon/IT1r/AK/k/wDSeCtWsrRP+QnrX/X8n/pPBWrQBl+Nv+RR1X/rxn/9ANalZfjb/kUdV/68Z/8A0A1H/wAJ3ov/AEGNM/8AApKAJPCf/ILk/wCvy6/9HyV478SP2xbHwp+0Npvw508+CP7YkFrJeDxB4rTRZpBdyeXDFZQeTNJe3BCOTH+7QZhG8+Z8nsXhP/kFyf8AX5df+j5K8f8AjD+yTefFDxxr91beKLfS9B8Zxabb+IdPk0gTXE4sZ5JI3tZxNH5Ej7wjvJHPxHHs2YoAPhN+1tdfEHx3oNtdeFbXS/DPjOTU4vDepJqnn3N59ik2P59sYY/J8xFeSPy5J/kQ7/Lr3SvCfhL+yRqHw38ZeH5rrxVFq3h7wXLqcnh3T00r7PcQfbpC7/apzM/n+WjOiGOOHh/n38V7tQBl+E/+QXJ/1+XX/o+StSub8OeGNOvrOeabT7OeaS8utzyQo5/18laH/CGaR/0CdP8A/AZP8KANSisv/hDNI/6BOn/+Ayf4Uf8ACGaR/wBAnT//AAGT/CgDUorL/wCEM0j/AKBOn/8AgMn+FH/CGaR/0CdP/wDAZP8ACgDUorL/AOEM0j/oE6f/AOAyf4Uf8IZpH/QJ0/8A8Bk/woA1KKy/+EM0j/oE6f8A+Ayf4Uf8IZpH/QJ0/wD8Bk/woA1KKy/+EM0j/oE6f/4DJ/hR/wAIZpH/AECdP/8AAZP8KANSisv/AIQzSP8AoE6f/wCAyf4Uf8IZpH/QJ0//AMBk/wAKANSisv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CgA8bf8ijqv8A14z/APoBrUrmPFfhTS7XwrqkkenWEbx2szo626fJ8hrT/wCEN0n/AKBOnf8AgMn+FAGpRWX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4UAalFZf/CGaR/0CdP/APAZP8KP+EM0j/oE6f8A+Ayf4UAalFZf/CGaR/0CdP8A/AZP8KP+EM0j/oE6f/4DJ/hQBqUVl/8ACGaR/wBAnT//AAGT/Cj/AIQzSP8AoE6f/wCAyf4UAalFZf8Awhmkf9AnT/8AwGT/AAo/4QzSP+gTp/8A4DJ/hQBqUVl/8IZpH/QJ0/8A8Bk/wo/4QzSP+gTp/wD4DJ/hQBqUHpWX/wAIZpH/AECdP/8AAZP8KD4M0j/oE6f/AOAyf4UAHiHXI9C05pm7V8An/guF4Nuv2jBoq6LcNoti/kS6iL4G4SOaQKly1tsyIWMEgBL7yiNjkGOvtT4o/DXTda8MzwwaVp/mbP8An1SvyD/aO/4Jwf8ACiPj5oPxClkuF8D2d8LfxVB5W1bbR5J4k+1yPwggsp5Y5pJZnWO3s21GTk4B+hyD+yuWr/aWr+z/AF5bnk5l9dvH6oftR4d16PXtOjmj/wCWleS3f7Y+l6b8cbjwTL4S8YJb2niGDwrL4j22TaUmqzadHqUcBQXX2vmCaP5/s/l73xv/AI66z4V/DTTdG8NwJPpOn+Zs/wCfVK+ffFX7Buta3+1ZrHiq08KfDGzsdV8baT4ng8YfaZv+En06ytNPsLefS44UtNnlzyWU6P8A6X5ZjvpD5Zevn5b6HrLbU+iF/aT+Hf8AaHia1/4T3watz4NTzPEMX9tWvmaEn9+6G/8Acf8AbTFTeDPjj4L+JOnaZdeG/GHhfXrXXHng06bTdVguk1B4T+/WF0c7/L/j2Z2d6+T/AAD/AME4PFnw88JeKNN0+30m38RLouq6b4f8Yf8ACf63cXE/2q5STY+mTQyW+neYiR+ZPaSO8ckaOidAl74V/sL+PvhPb6brtjpHgK68Saf411DXV0jUvFOpajbSWV3pcdpsfVLi1kupJ45E8z54D5n+xxsQHu97+238LofGU3h2z8beF9V8Rx6I/iCHTbXWLbzby1VJJC8bvIkH+rjZ+ZBhPnfYnz1leD/28vAfjf446l4FsdQs/tuk2trNf3b61pf2e2uLqRI4LPYt157zvJNGn7uN497xp5m9wK8l8E/sAeMPB3grTtFMPgbUGvPhjP4K1W6a7uIBaXwE7Q3UEf2Z/OjkebY/mOjonP7z7lbOofsKeILbwv4lawXwfPrU2qeFNW0eK6Z0t3fR/snnwTyCDfHHP9ldN6I/+s3+X/yzoA93vPj54fh+J2ieE7e4/tLUvED6hAr2kiTwWc9kkbzwzkP+7kAmT5Ov0riviR+3V4R+FWja9f61Y69bjw34utfCN7EsMLyCeeOCdLrHmf8AHqIJ0mL/AH9iSHZ8mK4j4Mfsa+KfC/xV0nxf4mt/A8Mi674h1i70/Tpp54rddRS1EMMbyQRmTZ5L73KRg8PsGdiHxt/4J4/8Lo/aD1jU5p9GtfAviPw5NbXtokObuPWPst3pyXKJs2eX9jvZOd4ffDHwfvoAeuXn7UHgzw/J40l17WbHwvpXgPVbfSdU1bWr6Cx08XM1rb3ARJnkx9y6gzv2fO+Oav6/+0n8PfDFpoc+pePvBOnQ+KI4JdIe6121ij1RJ/8AUPAWf98JP4DHnf2rwPwx+xj458NfC/4dalJa+Adf+JHhfxRf+Ktctr26nttJ1ie6hvIPkufsskkbwR3MfluYH/1GDy5eufvv+CY2tXfws8QaVt8DtqmufD7WPDqOYXS3sNQ1HUZL50j/AHHmfZYy8aI/+sxBH8lAH0rJ+1X8L7bwBJ4pb4jeAY/CsN5/Zr6w3iC1Gnpdf88PP3+X5n+xnNT6/wDtKfDzwodHk1Tx94J01PESQTaQLvXbWAaok/8AqHg3v+88za+zZkPz714X8Yv2JfE2pa54uvfCsfh+z0/xB4g0jUP7KtNcuvDUl/Y2unfZXtXvbOB57X9/5En7jfvSDy/k3muS0L/gmV4gtvgLq3h+9PgebxBefCC78C2t35k0kdvqk01w6Tb2h8zyAXg+f/Wfu/8AV0AfcFFZf/CGaR/0CdP/APAZP8KP+EM0j/oE6f8A+Ayf4UAalFZf/CGaR/0CdP8A/AZP8KP+EM0j/oE6f/4DJ/hQAeEv+QbP/wBft1/6PkrUrmvDXhTSrnTpN+m2D/6VdJ81uh/5byVo/wDCGaR/0CdP/wDAZP8ACgDUorL/AOEM0j/oE6f/AOAyf4Uf8IZpH/QJ0/8A8Bk/woA1KKy/+EM0j/oE6f8A+Ayf4Uf8IZpH/QJ0/wD8Bk/woA1KKy/+EM0j/oE6f/4DJ/hR/wAIZpH/AECdP/8AAZP8KANSisv/AIQzSP8AoE6f/wCAyf4Uf8IZpH/QJ0//AMBk/wAKANSisv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CgDUorL/4QzSP+gTp/wD4DJ/hR/whmkf9AnT/APwGT/CgDUorL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/woATxl/wAilqn/AF5Tf+gGtWuZ8VeFNLt/DGoyRabYRvHbSOjrAn7v5K0v+EN0n/oE6d/4DJ/hQBqUVl/8IZpH/QJ0/wD8Bk/wo/4QzSP+gTp//gMn+FAGpRWX/wAIZpH/AECdP/8AAZP8KP8AhDNI/wCgTp//AIDJ/hQBqUVl/wDCGaR/0CdP/wDAZP8ACj/hDNI/6BOn/wDgMn+FAGpRWX/whmkf9AnT/wDwGT/Cj/hDNI/6BOn/APgMn+FAGpRWX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4UAalFZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FAGpRWX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4UAalZd3/yOFj/15XP/AKHBR/whmkf9AnT/APwGT/Cs278KaWfFNnH/AGbp+2S1nd18hP78FAHTUVl/8IZpH/QJ0/8A8Bk/wo/4QzSP+gTp/wD4DJ/hQBqUVl/8IZpH/QJ0/wD8Bk/wo/4QzSP+gTp//gMn+FAGpRWX/wAIZpH/AECdP/8AAZP8KP8AhDNI/wCgTp//AIDJ/hQBqUVl/wDCGaR/0CdP/wDAZP8ACj/hDNI/6BOn/wDgMn+FAGpRWX/whmkf9AnT/wDwGT/Cj/hDNI/6BOn/APgMn+FAGpRWX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4UAalFZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FAGpRWX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4UAJon/ACE9a/6/k/8ASeCtWsPwrYw2N7rEMEMcMKXg2oibB/qIK3KAMvxt/wAijqv/AF4z/wDoBrUrL8bf8ijqv/XjP/6Aa1KAMfwaznRZPNREk+1XW9Fffj9/JWxWX4T/AOQXJ/1+XX/o+StSgAooooAy/Cf/ACC5P+vy6/8AR8lalZfhP/kFyf8AX5df+j5K1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigDL8bf8ijqv8A14z/APoBrUrL8bf8ijqv/XjP/wCgGtSgAooqvc6hDYj52oAsUVTtdYhuv9W++rlDutGAUUUUAFFFFABRRRQAUUUUAFFFFADXiWQYNcb4z+GeheO9Qk0fXNH0zWNF1jS7+x1DT763S4tb63lMKSQyxuCskbozKysCGBIIINdpWXd/8jhY/wDXlc/+hwUAeRfsPeKdU0Lwrrnwo8ValqGqeMvg9dpoj6hqVw8994j0Z036PrEkshEtzJPaAQ3N1sSOTUrHVUiGyGvca+f/ANrL/jH34p+EPjpa/wCj6To+3wr8QtvyxyeHruZfJ1KbG1T/AGVfNHcGe4kENnp13r0gUvIK+gKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDL8Jf8AINn/AOv26/8AR8lalZfhL/kGz/8AX7df+j5K1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigDK8Zf8ilqn/XlN/6Aa1ayvGX/Ipap/15Tf8AoBrVoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACsu7/AORwsf8Aryuf/Q4K1Ky7v/kcLH/ryuf/AEOCgDUooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMrRP+QnrX/X8n/pPBWrWVon/IT1r/r+T/0ngrVoAy/G3/Io6r/14z/+gGm/a9b/AOgbpX/gwf8A+M07xt/yKOq/9eM//oBrUoAy/Cf/ACC5P+vy6/8AR8lalY/gyBbfRZI137Uurpfmff8A8t5K2KACiiigDL8J/wDILk/6/Lr/ANHyVqVl+E/+QXJ/1+XX/o+StSgAooooAKKKKACiiigAooooAKKKKACiiigAooooAy/G3/Io6r/14z/+gGtSsvxt/wAijqv/AF4z/wDoBrUPSgBjrla+KP8Agr/4w8Vad+z9NZ+G5ryCO4vY/wC0Htn/AHn2X95v/wDImz/tnX2sh+X8a4n4n/Cez+IVp5dwnmV2ZdjFg8VDEuHPynPjMP7ajKkfkN/wSQ8e/Hn4NeOdYi8P2sfxW8DmFZLmwv8AUo9E1ON1ZWYWrrCbO7uXTeqxyfYIgRCJJwC0q/f/AMX/APgo/wDDqL4LeK9J1zXtX+EPj+60a8tNK0jxvZy+GL+91MQPGLfS7i5C2upzxzNGjPpk13FukhKyMk0LSeufC/8AZ00/4fXfmW8Pl13Xi3wXo/j7wnqWg69pun61oes2c1jf6dfW63NrfW8ylJYZYmBWSNlYqVYEEEg8Gt86zOOOxUq8Ycq83f8AF6/ezPL8G8NS9k5c34f8A/O/x1+0P47X9l+3+Gdt4q8R2/jLwJHJ4g1/XI9Tnj1S40XZbz6cXn3+Z5k76haxyOZP3n2C+6fwfSE37V/jNvjBLND/AMIlJ4Lt/iLH8O30c2k39tNIYEf7aLnz/L4kff5Bt/8AUJv8yodW/wCCa2k/D+fVtQ+EHiCbwPea1bxWV/oXiG2l8W+EdSs4TILWzbTLqdZLS1tEmuPs1tpV1YRRNIgdJookgFT/AITLVfgh8T/+Eq+Kv7PMWreI7OHyJvin8ONDi8Qedb7PIjMlkoOvQTSsMNaWsGoxW8c0W69lVJ5IvMOw5Bv+ChfxE0f4TP41nt/AOqW3iz4aap8RPD2nWdtdxXGgfZXtSllqD+dJ9o+S8SN5o0gxNBInl4xs6HU/jl8QpfjB4b8I+KNQ0ePVND+ImmWl1d+HYbvTbPUbK60O/nFtJC88jvsnQ879kmyN/Ljr1H9n7Tv2ffjl4X8Wa58Kovg54w0LxRdS2PifUPCY03UbXV7kr5kkN5LbhlmkCXAYpKSds+cYYZ9Hn+HWhX3iJdVn0XSJtU+0x3n2qSyjafzo0kjjfftzvSOR0R85COw6GgD4z+EH7Z/xT8eR/DHw94P06wzd6D4Xu9Re58Na14mjlS+3/apn1Q3qR2v2eCMSf6XJNPPvpPAH7RPxe8PfC2aGbxD4cuI/EFn41vNCv59Pur6/0qfSr6Ty3neS62XUboXRECR+R5cA/eDIr2T4gf8ABNP4e/EH4y6D4xC3GjyeH009LLTbDStKS3tI7GTfBHBPJZvd2SAkfJaTwZwfVs+0af8ADDw5phsTb6Bolv8AYDdfZNlgifZftL759ny/J5rcvj755NAHP/szal4i8R/AjwdqfizUrHWvEWpaVFeXd7ZWDafbzGRd6/uDJJtOx03fP87AsEjB8tPRq5v4e/DvQ/hP4UtNA8M6LpPh7RdP3i203SrNLS0tt7mR9kKfImXdn4H8ZrpKACiiigArLu/+Rwsf+vK5/wDQ4K1Ky7v/AJHCx/68rn/0OCgCTxZ4T0vx74V1LQtd0zT9a0TWrSWw1DT7+3S5tb+3lQpLDLE4KSRujMrIwIYEggg14/8AsCeLNVn+DWqeB/Empahq3iv4PeIL3wPqV1qNw93qF5b2xWbSbu8uSStxeXei3GlXk8qHBmvJQUhdXhj9wr5/+Pv/ABjv+1P4K+LEfyeH/G32H4ZeNe/l+fdyf8I7e/xOfJ1O9nsPKgRd/wDwkXnzyCKwXaAe9ajqNvo+nz3d3PDa2trG0000zhI4UUZZmY8BQASSeABXh+if8FL/AII+Kv2ZdY+Mej+Nl134b6HrB0G41jStJvr8TXv2uOzEVvDDC01zuuJY0R4EdH3hlZl+avXfiNpdnrnw+1yy1Dw+viywvNPnhudEaKCVdYjaNg1qUuGWFvNBKYlZYzuwxC5NfCX7Nn7PvibWf2Tvjt4N+Lf7OfxUfTfFHxJ1LxxpuhWHijQrPUNWgu9YW+tFtrqz1qP7Pc2rRxSyb7iFRsxG8p+UzFtzlHoo3+fNFW824uTS6NXehpyx5YS7zSa/uuLd12s0ld6a+tvtz4OfGXSPjp4Q/tzRLPxXY2Qne28vxD4X1Pw7eblAJP2bUIIJ9nzDD7Nrc4Jwcct+07+2h8O/2O9Itr7x9qmsWMN1a3eoBdL8O6lrk0NpaKjXV3LFYwTPDbQiSPzJ5FWJDIgZgWUHyD9lnQvjd+zr+yv8UNVl8J+LPGmsNrd7qvw7+H/ivxtDeeILPTzHEI9Nvdalmuoy7zrcSqz3FyIo5o0Mrbdqs/4KSal8bviV+z34Z8E+A/hn4vuYviRF9i+IF/4b1fQzqnhLTHhH2u2sv7RvLWGa7m3tAk4JSJfMl2syxozrXVvZ72jv0cls2r/C78zXNy263jecPyuX73a8tu0Xur91ZxTtzdNnb0P4s/8ABSP4K/BTWdOste8aKx1DS7fXWudL0m+1ex0zTbhwkF/fXNpDLBYWkhJ2XF28UTBJCGIRyvuEciyxqysrKwyCDkEV+bv7b3/BPPxF8V/B91oPwd8C/GD4d6l8T/hpp3gLWduu+GbfwlpthCJ4oLbWFaW51Bp7KKebnSlZZtyRmdkZnT9EPA/hhPBPgvR9Fjma4j0iyhsllYbWkEcaoGI7Z25rXljaTXSTS21V5a2V7Wjy63ak27W5TGLn7qfWKb8nyx/OTnpuklfVmpRRRWZoFFFFABRRRQAUUUUAZfhL/kGz/wDX7df+j5K1Ky/CX/INn/6/br/0fJWpQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZXjL/AJFLVP8Arym/9ANatZXjL/kUtU/68pv/AEA1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/wDI4WP/AF5XP/ocFalZd3/yOFj/ANeVz/6HBQBqUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAGVon/IT1r/AK/k/wDSeCtWsrRP+QnrX/X8n/pPBWrQBl+Nv+RR1X/rxn/9ANalZfjb/kUdV/68Z/8A0A03/hDrT/ntq3/g0uv/AI5QA7wn/wAguT/r8uv/AEfJWpWP4MnW40WSRd+17q6b5k2f8t5K8n8XftZP4a/ant/hmsXgOzzbafdedrXi7+zdQv8A7U9wnl2Vn9lk+1SR+RyhkT/WJ60Ae4UV4X8Jv2trr4g+O9Btrrwra6X4Z8ZyanF4b1JNU8+5vPsUmx/PtjDH5PmIryR+XJP8iHf5de6UAZfhP/kFyf8AX5df+j5K1Ky/Cf8AyC5P+vy6/wDR8lalABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBl+Nv+RR1X/rxn/wDQDWpWX42/5FHVf+vGf/0A1qUAHSjFFFABRRRQAUUUUAeX/Gv9i/4X/tB+KrfxH4m8H6fJ4ysbRbCx8W6ZJLo/ijS7cO7+Ta6vZvFf20bebMrJDOgdJ5kYFJZFbj/+Fe/tBfA3nwt428P/AB00+4/1ll8R5IfDGq2krdZY9T0bTmtnt1VFVbV9L80vPLIb3aiW9fQFFAHh/hP9vvwbP4q03w3440vxh8HvFerXcWnWum+ONJNha3l7M4W2sbXVoml0i+vJ1ZXjtrO9nmI8wFFeGZI/cKz/ABZ4T0vx74V1LQtd0zT9a0TWrSWw1DT7+3S5tb+3lQpLDLE4KSRujMrIwIYEggg14f8A8MEWfwq/efBHxl4g+CMMf71fDWjW1rfeDbmVPmiR9HuY2js7cyGR500iTTpbk3EzyTGby5owD6Aor5//AOF4/GT4Df6P8RPhx/wsrSYv3j+LvhlCsfkQL88815oN5dNeReWrBY4tOn1We58iVhFC7xWz+gfAv9qr4cftL/2pH4F8aeH/ABJqHh/yl1vS7a6Uar4dll3hbfUbJsXNjcbopUaC5jjlR4ZUZFZGUAHoFFFFABWXd/8AI4WP/Xlc/wDocFalZd3/AMjhY/8AXlc/+hwUAalc/wDFj4W6D8cfhZ4m8E+KbH+1PDPjDSrrRNXs/Okg+12dzC8M8XmRssibo3ZdyMrDOQQcGugooA8f/Yq+KWveOfhZqHhzxpff2l8Rvhdqsng3xbe+THD/AGpeQQwzQal5cSiGL+0LC5sdR8iEutt9v+zljJA4HsFfP/x9/wCMd/2p/BXxYj+Tw/42+w/DLxr38vz7uT/hHb3+Jz5Op3s9h5UCLv8A+Ei8+eQRWC7foCgAooooAKKKKACiiigAooooAKKKKACiiigDL8Jf8g2f/r9uv/R8lalZfhL/AJBs/wD1+3X/AKPkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMrxl/yKWqf9eU3/AKAa1ayvGX/Ipap/15Tf+gGtWgAooooAKKKKACiiigAooooAKKKKACiiigAooooAKy7v/kcLH/ryuf8A0OCtSsu7/wCRwsf+vK5/9DgoA1KKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDK0T/kJ61/1/J/6TwVq1laJ/yE9a/wCv5P8A0ngrVoAy/G3/ACKOq/8AXjP/AOgGtSsvxt/yKOq/9eM//oBpv/CY2n/PHVv/AAV3X/xugB3hP/kFyf8AX5df+j5K80+NnwT8SfGy4j0m68QaFY+B5buyvLrT10KSTVGe1u47r5Lz7V5ab5IU/wCXUuBnBD4dPS/Cf/ILk/6/Lr/0fJWpQB4T8Jf2SNQ+G/jLw/NdeKotW8PeC5dTk8O6emlfZ7iD7dIXf7VOZn8/y0Z0Qxxw8P8APv4r3aiigDm/DnhjTr6znmm0+znmkvLrc8kKOf8AXyVof8IZpH/QJ0//AMBk/wAKPCf/ACC5P+vy6/8AR8lalAGX/wAIZpH/AECdP/8AAZP8KP8AhDNI/wCgTp//AIDJ/hWpRQBl/wDCGaR/0CdP/wDAZP8ACj/hDNI/6BOn/wDgMn+FalFAGX/whmkf9AnT/wDwGT/Cj/hDNI/6BOn/APgMn+FalFAGX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4VqUUAZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FalFAGX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4VqUUAZf/CGaR/0CdP/APAZP8KP+EM0j/oE6f8A+Ayf4VqUUAcx4r8KaXa+FdUkj06wjeO1mdHW3T5PkNaf/CG6T/0CdO/8Bk/wo8bf8ijqv/XjP/6Aa1KAMv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CtSigDL/4QzSP+gTp/wD4DJ/hR/whmkf9AnT/APwGT/CtSigDL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/wrUooAy/8AhDNI/wCgTp//AIDJ/hXy58LP2l/Fmtf8FG/iN8LvGvgLwL4P8B+GfBUPivRLvzhc6pdQnUruza6u5ARbwRSLbGVIVDOkbK0kiuzQxfW9fPMn/BPGx1L9rzWvi9q3xK+IWvXHiLRG8L6j4W1G00Gbw/d6N5k8q6c8Y0wXDQrJcSNuM5lbIV5HT5TK5vaJra0t9ruLUdtdJNP0T62KfK6Uk97xtbeyknJa6axuu97apXPMf2Av21Nb/bH/AGoPiNpeoeCfCWi/DWHw/pXinwDPHZN/a2qaZd3N/bJeXTGQx7bj7D9ohRI0KwzxhyzZx6r/AMFFfjDJ+x9+xX4++Jfh/wANeHdQ1DwjYpekX9qsltaQedGk908QkiacQQtJN5CSxvN5Xlq6s4YO+BX/AATE+B/7Mv7SOsfFH4f/AA88I+Ddf1fQ7fQfs+i6DYafZ2UUUs0jywLBAjpLN5yrK28h1ggGBsyWeIP+Ceeg+NP2ZfEHwv8AEXjz4peKLLXPEB8TQa3rOtx32saNdrfR31strJJCYhDbTRR+VDLFJGFUKyupILqawjGHRa33dpdbNXbjq7ON2rJxumiL/euT2utOy5Vfo9OZNa8zs7vm6/F/w3/4LQt47/Zzj1/R/wDhVfjmTxd8TB8PvB/jHR/COpW2n3cS6YL+4u5vDyz3OqGeIpNFFZCVJrxzBs8pZVc/V/wk+Ffwq/4KJ/s7eGfE/iL/AIRfx3rGlz31lB4r8M6HqXgXVtEuUuTDdwWubk6rpMv7hYLiL7SryKjJIDG5jqL/AIdPeEJLO+1Sfx18Rrj4mX3iy38a/wDCxC+lR+IINSgs/sETJEliuneWLIvbmJrMoyyMzBpMSD2T9mP9mrQf2U/hi3hnQbrVtUa81K81rVNV1WVJdQ1rUbydp7q8uGjSOPzJJHYkRxpGowqIiqFGsXHlae9o/eoQT6JW5udt2Tu1urKOUk7px21v85Tfd9ORJXa0ls/i8t/4Zs+LXwL+X4f+J/B/xI8M2nNr4Z+I9nJDqqqf3aW0fiO1Eki28MYjdWvdO1C8mdJRNdsZxLAf8NoeC/hb/ofxq8E3/wAFtQteLvVdZ003Xg0KPkFyviKGM6fBbyzBo4F1B7K8kJhD2kTTwo/0pRWZZl/8IZpH/QJ0/wD8Bk/wrNu/CmlnxTZx/wBm6ftktZ3dfIT+/BXkv/DuTwT8P/3nwd1PxB+ztNJ8t1F8OI7Cx0q9U/faTSLq1udKNw5WENeC0F5st4ohOIQY2zrn4p/H/wCDniqzi8VfDLQfjBZx2lxDDqvw41ODR9TvZGeF/Ml0fWbiO3tIIwDEWTWLqWRxG4hRZHW3APff+EM0j/oE6f8A+Ayf4Uf8IZpH/QJ0/wD8Bk/wrg/gp+2h8L/2g/FVx4c8M+MNPk8ZWNo1/feEtTjl0fxRpduHRPOutIvEiv7aNvNhZXmgQOk8LqSksbN6hQB578eP2aPC/wC0H8HfEXgzVbNtNtfEFm1umo6ZHDDqOjzjDQX1nKyMIbu2mWOeCbaTFNDG45UVzv7IfjhfjZ8G4ZfFOg+H9P8AiF4Yu5vDnjTT7Kz8m3stZtCEuGgikZpks7geXeWhmxJLZXlnMVHmivZK+f8Ax/8A8Yzftk6L4wj/ANH8E/GjyPCviXHyW2m+IYVb+x9Sf7kUf2yES6XNPK0k088fhy2iUBTQB7Z/whmkf9AnT/8AwGT/AAo/4QzSP+gTp/8A4DJ/hWpmjNAGX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4VqUUAZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FalFAGX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4VqUUAZf/CGaR/0CdP/APAZP8KP+EM0j/oE6f8A+Ayf4VqUUAZf/CGaR/0CdP8A/AZP8KP+EM0j/oE6f/4DJ/hWpRQBzXhrwppVzp0m/TbB/wDSrpPmt0P/AC3krR/4QzSP+gTp/wD4DJ/hR4S/5Bs//X7df+j5K1KAMv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CtSigDL/4QzSP+gTp/wD4DJ/hR/whmkf9AnT/APwGT/CtSigDL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/wrUooAy/8AhDNI/wCgTp//AIDJ/hR/whmkf9AnT/8AwGT/AArUooAy/wDhDNI/6BOn/wDgMn+FH/CGaR/0CdP/APAZP8K1KKAMv/hDNI/6BOn/APgMn+FH/CGaR/0CdP8A/AZP8K1KKAMv/hDNI/6BOn/+Ayf4Uf8ACGaR/wBAnT//AAGT/CtSigDmfFXhTS7fwxqMkWm2Ebx20jo6wJ+7+StL/hDdJ/6BOnf+Ayf4UnjL/kUtU/68pv8A0A1q0AZf/CGaR/0CdP8A/AZP8KP+EM0j/oE6f/4DJ/hWpRQBl/8ACGaR/wBAnT//AAGT/Cj/AIQzSP8AoE6f/wCAyf4VqUUAZf8Awhmkf9AnT/8AwGT/AAo/4QzSP+gTp/8A4DJ/hWpRQBl/8IZpH/QJ0/8A8Bk/wo/4QzSP+gTp/wD4DJ/hWpRQBl/8IZpH/QJ0/wD8Bk/wo/4QzSP+gTp//gMn+FalFAGX/wAIZpH/AECdP/8AAZP8KP8AhDNI/wCgTp//AIDJ/hWpRQBl/wDCGaR/0CdP/wDAZP8ACj/hDNI/6BOn/wDgMn+FalFAGX/whmkf9AnT/wDwGT/Cs278KaWfFNnH/Zun7ZLWd3XyE/vwV01Zd3/yOFj/ANeVz/6HBQAf8IZpH/QJ0/8A8Bk/wo/4QzSP+gTp/wD4DJ/hWpRQBl/8IZpH/QJ0/wD8Bk/wo/4QzSP+gTp//gMn+FalFAGX/wAIZpH/AECdP/8AAZP8KP8AhDNI/wCgTp//AIDJ/hWpRQBl/wDCGaR/0CdP/wDAZP8ACj/hDNI/6BOn/wDgMn+FalFAGX/whmkf9AnT/wDwGT/Cj/hDNI/6BOn/APgMn+FalFAGX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4VqUUAZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FalFAGX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4VqUUAYfhWxhsb3WIYIY4YUvBtRE2D/AFEFblZWif8AIT1r/r+T/wBJ4K1aAMvxt/yKOq/9eM//AKAa1Ky/G3/Io6r/ANeM/wD6Aa1KAMfwarjRZPNdHk+1XW91TZn9/JWxWX4T/wCQXJ/1+XX/AKPkrUoAKKKKAMvwn/yC5P8Ar8uv/R8lalZfhP8A5Bcn/X5df+j5K1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigDL8bf8AIo6r/wBeM/8A6Aa1Ky/G3/Io6r/14z/+gGtSgAooooAKKKKACiiigAooooAKKKKACiiigAooooAKy7v/AJHCx/68rn/0OCtSsu7/AORwsf8Aryuf/Q4KAMP41/AHwb+0X4Vt9H8a+HtP16zsbtdR0+SZSl1o96iOkV9ZXCFZrO8iEjmK5t3jmiLbkdW5ry//AIZw+KnwM/5JP8Tv7Y8Pw/vv+ET+Jou/EWdnz/Z7PXPPGo2v2h2l8y4v/wC1vJ3xeRAkUP2eT6AooA+f/wDhvez+FX7v43eDfEHwRhj/AHTeJdZuLW+8G3MqfLK6axbSNHZ25kMaQPq8enS3JuIUjhM3mQx998VfAnhT9sT9nC+0dNa+1+GPHOlR3Gl+IfD95DJNbb1Wey1XTrnEka3EMghura5QN5csUMq8qpp3x0/aq+HH7NH9lx+OvGnh/wAN6h4g81dE0u5ulOq+IpYtga306yXNzfXG6WJFgto5JXeaJFRmdVPxh8arbw74nv8AWPFv7PnwN+NXgPxlrVxLPf8Aj3QdHtfhva3mpzOWkfWrDWlim1RAJWY3U2jakIRd3D2uboSKotXYD6v/AGRf2hb34z/CK3bxVHpmnfEHw1dTeHfGWn2SPFb2msWpEdw8EcjNMlncDZd2hmxJLZXlpKyjzRXraPu+lfzKeDfFP7UHwZ/bR1Txp4ot08Qa1qV5FHqZ8OSXVxrUcluHC6hJAsMS3e6IRxSrbxAyRRQCKHy41iP9FP7NPxp0H4+/CjTPFPhfxBonijQdTSQWup6RfRX1nc+XI0T7JomZG2yI6HBOGVgcEEV7GbZSsFCnLnbcm9GrPyfmmv8AI8/B4x15SVklHs7no44or5/1f4XeLLj9uPS9X0Fte0nwtptnHqXiG6vPFeq3On6558F9aJptrpblrGAwvBa3Tzx7Hz5abP37vX0BXjnoBRRRQAUUUUAFFFFABRRRQBl+Ev8AkGz/APX7df8Ao+StSsvwl/yDZ/8Ar9uv/R8lalABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBleMv+RS1T/rym/9ANatZXjL/kUtU/68pv8A0A1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/8jhY/wDXlc/+hwVqVl3f/I4WP/Xlc/8AocFAGpRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZWif8hPWv+v5P/SeCtWsrRP+QnrX/X8n/pPBWrQBl+Nv+RR1X/rxn/8AQDTfsmt/9BLSv/Be/wD8ep3jb/kUdV/68Z//AEA1qUAcv8Ndes/FHhGDUdNvLPUNP1Gaa7tbu1mS4t7iF5ndJEdMhkdDw2a6iuX+Gug2fhfwjBp2m2dnp+n6dNNaWtpawpb29vCkzokaImAqIg4XFdRQAUUUUAZfhP8A5Bcn/X5df+j5K1Ky/Cf/ACC5P+vy6/8AR8lalABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBl+Nv+RR1X/rxn/8AQDWpWX42/wCRR1X/AK8Z/wD0A1qUAFFFFABRRRQAUUUUAFFFFABRRRQAUUV8/wD/AA80+E/ij938P9Q8QfGaab9zay/DjQLzxRpU14fuWMmr2sbaVZ3BJjLLe3dusSTRSzNFC4koA+gKK+f/APhc37QXxP48LfBfw/8ADzT5v9EkvfiP4uhbVdOlPW7j0zRlvra9t0VlZYn1SzlmeOWMm3XZcOf8MfeO/iV+8+Jnx6+IGq2t7/yEvDvgmC38F6DLt/1X2ea3Emu22Cscj7dYPmSCQHFvIbYAHsHxS+LPhX4HeBL7xT428TeH/B/hnS/L+2avreow6fYWnmSLFH5k8zLGm6R0QbiMs6gckCvDrn/goPofjXxVZ/8ACtPh/wDF34tyi0uJUk0Lwu+laZe2heHbfWmray9hpd9bt+7KNZ3czSpKkkayRB5F7H4W/sB/Bv4P+O7HxfpPw98P3nj3TvM8rxprcba54sffG0J8zWb1ptQlxC5hHmTtthCxLiNVQemXf/I4WP8A15XP/ocFAHif/CRftNfFHjTvDvwf+D2ny/6Xa3uu397411UxH7lpd6ZajTra2uNrBpJYNUvIo3haNBcLILhD/hgX/hLf+R++NX7QHxA+z/8AHh/xV/8Awh/2Dd/rP+RZh0r7RvxH/wAffn+X5f7ry98vmfQFFAHn/wAC/wBk74Wfsv8A9qf8Kz+Gnw/+Hf8Abnlf2l/wjHh600j+0PK3+V532eNPM2ebJt3Z2+Y+MbjnrvEWgx69YSQy/ckrSooA8S/4ZM0r/hJPt/k/Pvr4U+Nf/BOLxV/wSU+LGufGL9mzWrHwN8L/ABBcnWPG3h200W0lTTLhQPvNNJFCNEkIEkiSlGsJI3SC90aw1HU7+x/Viim5N7hY+Vf2fP28fA3izWNJ1DxzpOg/Dfxx42aLRbTUWFxLo3iKYXEsUGmW+r3VnaNJqMdwbm3bR7qK21KG4tr1TaGKNZ5PqqvhDxZ8Abj9gzxVqWm6R4e0/wAU/Cf4i3cumT+Hb1YF0nX4bxzFF4duY5itpZ3kUciWOkXLeVZXdpHaaJeeRJBpV6fT/hbq/ir4WeBLHxT8Jb7xB8b/AIRXnmIvhPU72abxxpF0JGhuFh1PWr2Iy+RdRMk+naqY7q2ke8Aul+zQaZSA+oKK4/4KfHfwz+0H4VuNW8M3WoSR2N21hfWep6Vd6Pqel3ARJPJurG8iiuraRopYZlSaJC8M8Mqgxyxu3YUAFFFFABRRRQAUUUUAZfhL/kGz/wDX7df+j5K1Ky/CX/INn/6/br/0fJWpQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZXjL/AJFLVP8Arym/9ANatZXjL/kUtU/68pv/AEA1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/wDI4WP/AF5XP/ocFalZd3/yOFj/ANeVz/6HBQBqUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAGVon/IT1r/AK/k/wDSeCtWsrRP+QnrX/X8n/pPBWrQBl+Nv+RR1X/rxn/9ANalZfjb/kUdV/68Z/8A0A1H/wAIJov/AEB9M/8AAVKAJPCf/INk/wCvy6/9HyV5n8cP2no/hD8UfB3he10ca5feJL+1t9QP2wwLo9rPP5EM7/u33vJJvEcfyb/s8/zjy6vfsi/EK++MP7MXgrxXqMNnb6l4n0iDV7qO1R0gSedfOfZvLHbvc4yTXPfG/wDYj8MfGPxva+Ivt3iLRdcbV9P1G/lstd1K3j1FLThI/JhuY4o5NvAmRN6UGdOpzR5hPhN+1tdfEHx3oNtdeFbXS/DPjOTU4vDepJqnn3N59ik2P59sYY/J8xFeSPy5J/kQ7/Lr3SvCfhL+yRqHw38ZeH5rrxVFq3h7wXLqcnh3T00r7PcQfbpC7/apzM/n+WjOiGOOHh/n38V7tQaGX4T/AOQXJ/1+XX/o+StSub8OeGNOvrOeabT7OeaS8utzyQo5/wBfJWh/whmkf9AnT/8AwGT/AAoA1KKy/wDhDNI/6BOn/wDgMn+FH/CGaR/0CdP/APAZP8KANSisv/hDNI/6BOn/APgMn+FH/CGaR/0CdP8A/AZP8KANSisv/hDNI/6BOn/+Ayf4Uf8ACGaR/wBAnT//AAGT/CgDUorL/wCEM0j/AKBOn/8AgMn+FH/CGaR/0CdP/wDAZP8ACgDUorL/AOEM0j/oE6f/AOAyf4Uf8IZpH/QJ0/8A8Bk/woA1KKy/+EM0j/oE6f8A+Ayf4Uf8IZpH/QJ0/wD8Bk/woA1KKy/+EM0j/oE6f/4DJ/hR/wAIZpH/AECdP/8AAZP8KADxt/yKOq/9eM//AKAa1K5jxX4U0u18K6pJHp1hG8drM6OtunyfIa0/+EN0n/oE6d/4DJ/hQBqUVl/8IZpH/QJ0/wD8Bk/wo/4QzSP+gTp//gMn+FAGpRWX/wAIZpH/AECdP/8AAZP8K8v+Nf7UfwN/Z08VW/h3xr4w+H+g+K760W80/wANzXVu+v6wju8cQstNQtd3kkskbxRR28Ukksi+Wis/y0AeyUV81/8ADVU3xAG34a/s7/E7xdDN/oser69oUHgnSrK8PRLuLWXttVFugaN5Li0067XY7CITzRvAp/won47/ABX58QeL/hf8JtJ1D/X6Z4J8Mf29rulbPu/Z9b1MrZy+Yyqz+boQ2xyyQr86pd0AfSleP/FL9vX4T/CTx3feEbzxX/b3jbSfLbUPCnhPTLzxV4k0yJ41kW4udL0yK4vILcrJF+/kiWIGeAFwZYw3IWf/AAS5+GfiGdbr4iXHjT4xX02f7QTxnr01xomr44i+0aBbGDQj5SiPZt09cSQpMd1wDMfKP2WNN8RfBr/gpX48+Dt1pvwv8N/CTR/h9D4o8J+EPCnhm207T9ASbWr+HzZJRGryTzJF50oURwo8rKqOVaeWeb3lDupP/wABi5P8Iu342HKLVN1OicV5+9JRXyu1c9m/4ak+LHxI+X4ffs++ILeGT/SrXWPiP4is/CulajZn7jxxWo1HVYbhw0brb3unWzInmiYwzIIHP+FE/Hb4p/6Z4s+OX/Cuf+W1rpPwy8Naf/ofmcvb3l9rcGof2h5OESO4t7TTt/713g/eRxwfE3/BJz9uvx7+0l+2FpHhjxxqHiZrHWvDeuajNH4k8IafYeGfE9xb38CQXPg69trKCW8sEgdmc3k0snlzQlfMIklH2H/wVL+IWofs2fsH+PvGXguHSNN8UaVBbLp7myhlup2lu4Ymgs45IpY5L6VHeO2SSKRGuHhDoylgaqe5TjVe0tv/AAJx/NfcOMb1ZUVunby2T+6zNb/h1x8CdY/5GzwL/wALU8v/AI9f+Fm61qHj/wDsvP3/ALH/AG3Pd/ZPMwnmfZ/L83yot+7yo9v0BX4//Dn/AIKQfEjxL8LV8NabD8QrrxV4w+LieCNOtfFPgfSNP+JvhfTv7D/tKRbmw8i10pbudoZPss0qG1jinWSdn8uRF/QT9gf4h+G/j/8As7W+owN4q1jUtD1XUfD+tN4z0rSrTXrTUbO7kguLe6TTY47LfGy7Q1uDGybGDMSWNqm2r+SfycYyv8lOKfZtLqjNzSaT63/CUo/i4Sa7pN9D3yisv/hDNI/6BOn/APgMn+FH/CGaR/0CdP8A/AZP8Kgo1Ky7v/kcLH/ryuf/AEOCj/hDNI/6BOn/APgMn+FZt34U0s+KbOP+zdP2yWs7uvkJ/fgoA6aisv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CgDUorL/4QzSP+gTp/wD4DJ/hR/whmkf9AnT/APwGT/CgDUorL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/woAk8WeE9L8e+FdS0LXdM0/WtE1q0lsNQ0+/t0ubW/t5UKSwyxOCkkbozKyMCGBIIINfIHhrwT4+/ZO+Msmi6DfafqnivxNd3I0Y+KtYubXQvijYRiRrW1ub9Ybq4tPEmk2EccH2mSO6m1XT9PEkpuXid9E+u/+EM0j/oE6f8A+Ayf4Vg/Ez4A+DvjB4Hv/DviHw7Y3ulagE3rGDbTwyI6yRTwzxFZYJ4pUSWKeJ0likjSSNkdFYAHmP8AwrrwT+2f/wAV3oMniD4W/F3w3/xTd9r+nWlhb+MvCjR/vptFvfOiurae3K3PnCCZLmzlE9ve2xfNpdg/4a5179nX/R/2gtH8P+C9Ch/dL8StO1SNfBtw33Yhe/aXS50e4nZJGEU4ns4zJb266lcXM0cTefeG/hzr3/CeNp1w+g2P7RHgq2uvsF1qNpHaaR8XfCsV4/2X7W1vFsaSNLiBbie3t0l0vUbiSSO1On36W2pe+/BXxx4T+OPha4vrHQf7K1LSrttM1zRNTs4YtT8O36IjyWd1GjOqyBJI5FeN3hmhmhnhkmgmilcA9Eor5tn/AGQ/EX7NszXHwNt/CN34dlJkufh/4xur0aWj/cQaVqK/aZNFgSNhmzS0urPZaQRW8FiXnnk774GfF3wX8eP7Us7Tw7qHh3xN4d8pdb8OeIdEOnarpLSbwrFGGy4t2khuI47y1eezne1nEE8wiYgA9UorL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/woA1KKy/8AhDNI/wCgTp//AIDJ/hR/whmkf9AnT/8AwGT/AAoAPCX/ACDZ/wDr9uv/AEfJWpXNeGvCmlXOnSb9NsH/ANKuk+a3Q/8ALeStH/hDNI/6BOn/APgMn+FAGpRWX/whmkf9AnT/APwGT/Cj/hDNI/6BOn/+Ayf4UAalFZf/AAhmkf8AQJ0//wABk/wo/wCEM0j/AKBOn/8AgMn+FAGpRWX/AMIZpH/QJ0//AMBk/wAKP+EM0j/oE6f/AOAyf4UAalFZf/CGaR/0CdP/APAZP8KP+EM0j/oE6f8A+Ayf4UAalFZf/CGaR/0CdP8A/AZP8KP+EM0j/oE6f/4DJ/hQBqUVl/8ACGaR/wBAnT//AAGT/Cj/AIQzSP8AoE6f/wCAyf4UAalFZf8Awhmkf9AnT/8AwGT/AAo/4QzSP+gTp/8A4DJ/hQAnjL/kUtU/68pv/QDWrXM+KvCml2/hjUZItNsI3jtpHR1gT938laX/AAhuk/8AQJ07/wABk/woA1KKy/8AhDNI/wCgTp//AIDJ/hR/whmkf9AnT/8AwGT/AAoA1KKy/wDhDNI/6BOn/wDgMn+FH/CGaR/0CdP/APAZP8KANSisv/hDNI/6BOn/APgMn+FH/CGaR/0CdP8A/AZP8KANSisv/hDNI/6BOn/+Ayf4Uf8ACGaR/wBAnT//AAGT/CgDUorL/wCEM0j/AKBOn/8AgMn+FH/CGaR/0CdP/wDAZP8ACgDUorL/AOEM0j/oE6f/AOAyf4Uf8IZpH/QJ0/8A8Bk/woA1KKy/+EM0j/oE6f8A+Ayf4Uf8IZpH/QJ0/wD8Bk/woA1Ky7v/AJHCx/68rn/0OCj/AIQzSP8AoE6f/wCAyf4Vm3fhTSz4ps4/7N0/bJazu6+Qn9+CgDpqKy/+EM0j/oE6f/4DJ/hR/wAIZpH/AECdP/8AAZP8KANSisv/AIQzSP8AoE6f/wCAyf4Uf8IZpH/QJ0//AMBk/wAKANSisv8A4QzSP+gTp/8A4DJ/hR/whmkf9AnT/wDwGT/CgDUorL/4QzSP+gTp/wD4DJ/hR/whmkf9AnT/APwGT/CgDUorL/4QzSP+gTp//gMn+FH/AAhmkf8AQJ0//wABk/woA1KKy/8AhDNI/wCgTp//AIDJ/hR/whmkf9AnT/8AwGT/AAoA1KKy/wDhDNI/6BOn/wDgMn+FH/CGaR/0CdP/APAZP8KANSisv/hDNI/6BOn/APgMn+FH/CGaR/0CdP8A/AZP8KAE0T/kJ61/1/J/6TwVq1h+FbGGxvdYhghjhhS8G1ETYP8AUQVuUAZfjb/kUdV/68Z//QDWpWX42/5FHVf+vGf/ANANR/8ACSXv/QB1X/v5a/8Ax6gCTwn/AMguT/r8uv8A0fJWpWX4T/5Bcn/X5df+j5K1KACiiigDL8J/8guT/r8uv/R8lalZfhP/AJBcn/X5df8Ao+StSgAooooAKKKKACiiigAooooAKKM1Tu9Yhsf9Y9CTewFyiq9rfpdj5Wqv4s8W6V4C8K6nruu6lp+i6HotpLf6hqF/cJbWthbxIXlmllchI40RWZnYgKASSAKANCivn/8A4eafCfxR+7+H+oeIPjNNN+5tZfhxoF54o0qa8P3LGTV7WNtKs7gkxllvbu3WJJopZmihcSUf8LU/aC+Mf7nwt8MPD/wf0+T91Jq/xH1WHWNVs5V+cvHo2jXEltdW8i7Yld9ZtZUdpXMLLEi3AB7Z42/5FHVf+vGf/wBANYfxr/aF8A/s1+FbfXfiN448H+ANEu7tbCDUPEms22lWs1wyO6wrLO6I0hSORggOSI2OMKceO+L/ANkTx58QvC+pT/Er49ePdWt7qzmbUfDvgu2tvBugS7EPleRLAsuuW4BWORwNYYSyCRTi3kNsPQvgp+xf8L/2fPFVx4j8M+D9Pj8ZX1o1hfeLdTkl1jxRqluXR/JutXvHlv7mNfKhVUmncIkEKKAkUaqAcf8A8PDdB8Z/u/hr8PvjB8XJj++jl0LwrJpelXln2vrTV9Zaw0q9t3JjMbWl3M0ySrLEskIeRD+0P2mvit/pWnWvwf8Agvp6/vbW3121vfHWq30UnKJdxWtzpltp9xCoAkSC61GJ3kYJMFhEk/0BRQB8/wD/AAwL/wAJb/yP3xq/aA+IH2f/AI8P+Kv/AOEP+wbv9Z/yLMOlfaN+I/8Aj78/y/L/AHXl75fM9Q+Cn7PfgH9mvwrcaF8OfA/g/wAAaJd3bX8+n+G9GttKtZrhkRGmaKBERpCkcalyMkRqM4UY7CigAooooAK8Z039gP4a6V+01dfGCO38bSePr6BrS4u5/Heuz2c1sWkb7K1i94bQ2yvLI62/k+UjsWVFbmvZqKLK/N11/HR/etwu+Vx6P9Njxb4C/wDBPb4S/sz+NLfxB4P8O6naahp9lNpulrf+I9T1a10C1mkWSW3062u7iWHT4XZI8x2qRKRGi42qoC6T/wAE8vg9ofwB8Q/C+08H+T4J8UazP4h1CxXVb3zTqM1yLp7uK587z4JRcKsqNDIhiZVKbMCvaKKOlvK3yb5rel0nbur7h1v53+drX9bNq/Z2PCV/4JrfB3/hXV54afw9rlxFf65D4mm1ifxZq83iQ6nDGIorway90dSWZIR5KutwCsRaMYjYqfSvgl8DvC37Ofw4s/Cfg3SxpOh2LyzLE1xLdTTzSyNLNPNPMzzTzSSO7vLK7yO7MzMSSa6yimpNKy8vwSS+5JJeSS6A9d+n/Bf5tv5sKKKKQBWXd/8AI4WP/Xlc/wDocFalZd3/AMjhY/8AXlc/+hwUAalFFFABRRRQAUUUUAFFFFAHH/Gv4KaV8cvCtvY31xqGlalpV2up6HrmmOkWp+Hb9EdI7y1kdXRZAkkkbJIjwzQzTQTRzQTSxP4f4d/4Sr4l+O/EV9p//CP+Hf2ivhP9m0bWV/fWfh/4kaPJGbqzeSJvNuYtPnaW6W3uds8mmahBqcMUl/DFex6h9QV5/wDHT4Gf8LT/ALL1rRdU/wCEV+IHhXzX8O+IktvtH2TzdnnWlzDvT7Vp9x5UQuLUum/yopY5ILm3trmAAPgX8dP+Fp/2poutaX/wivxA8K+UniLw69z9p+x+bv8AJu7abYn2rT7jypTb3QRN/lSxSRwXNvc20B8dP2aPCvx+/su+1S0/s/xb4Z82Twx4s0+KFNe8Jzy7N81jcOj+Xv8AKjWWJleC5jUw3EU0LvE3n+n/APGXuj3Wo2v/ABbX44fB/VZtCuLqL/iaQ6BqMlrZ3ktm7jyRqej3trNYTtETC8kUls5FhqFtGbP0D4F/HT/haf8Aami61pf/AAivxA8K+UniLw69z9p+x+bv8m7tptifatPuPKlNvdBE3+VLFJHBc29zbQAHn/8AwuLx3+yT+5+LEn/CbfD+P5/+Fkabp9vp3/CM2qfJu8Q2vn/9cpJNRsIVtR5lzJPa6ZbWvnS+4eE/Fml+PfCum67oWpafrWia1aRX+n6hYXCXNrf28qB4popUJSSN0ZWV1JDAggkGtCvD/Fn7K2q/DzxVqXjL4P8AiLUPDOt3t3LquoeEb+/eXwf4puHcySrLA8czaXJM8lzI11pghL3Vybm6h1Ep5DgHuFFeX/BT9pm3+Iviq48GeJNH1DwV8S9JtGudQ0G8hna1ukjdEludLv3ijh1SzUy27GWD95CLy2S6htLiT7OvqFAGX4S/5Bs//X7df+j5K1Ky/CX/ACDZ/wDr9uv/AEfJWpQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZXjL/kUtU/68pv/AEA1q1leMv8AkUtU/wCvKb/0A1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/8jhY/9eVz/wChwVqVl3f/ACOFj/15XP8A6HBQBqUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAGVon/IT1r/r+T/0ngrVrK0T/AJCetf8AX8n/AKTwVq0AZfjb/kUdV/68Z/8A0A1qVl+Nv+RR1X/rxn/9ANalAGP4OjMGiyKzSSNHdXXzP/H+/krYrL8J/wDILk/6/Lr/ANHyVqUAFFFFAGX4T/5Bcn/X5df+j5K1Ky/Cf/ILk/6/Lr/0fJWpQAUUUUAFFFFABRRRQAUUUUAVr2Ty4Hr8lf8AguD458d3XjPSbfS42utFtbUfZrO4vmtbF7rzX83zZFjkZcRbTHhGyQ44zkfrbIvnJXl/xP8A2ddP8e3fmTw+YK9XI81/s/FRxHLzfp9+n3nFmGB+tUvZc3KfDP8AwS2+Hfx5+LXwNtLPxR8dvE3g6w025caMPCPhvS7e5uoGVfmuX1aLUw6hgBGsCQFU80u0weMRen/tDfsXfDX4M/Hf4R+I10XWPGmqaHNrGs6bJ488Uat41fTLm002W6hktW1W4unsz50MTs9qY2doYSxYxR7frP4YfCiz+HtpHHbpsNbWv+C9K8U3FrcalpmnalJZiRYHurVJpIA67JNhcErvTKMB1HBrlx2KjisRKvGHLzed/wDgm+FoulSjSZ4r+yN+0F48+JvjBdJ8cL4Rkl1bwfpHjPTm0KzntRYJfPcI9pJ500nneX5KYnTy9+9/3acV5OvxP+NniKz8LrN468LzaxcfGjUvDlnLHoNxY2cdla2uspJHdQpe5uo/3CPHHvj/AHkce93+/X2FpHgLR9CvVuNP0jTbG6hso9Ojlt7aOKSO1jz5cAOP9Wm59ifcHtWXZfBXwfpHiW71qz8JeGbbWtQvU1K6votLhS5uLtEkhWd5Nm55BHNJH5h+YJI4z8+K5DY+S/Ff7c3xe8eeEdE0Pwf4K03XPFUvh3VNS15LWzhazvTa6jNprpD9q1S0kto3eF38wfanj8xP3cmPn9y/aY+MXjrwf4q8C+HfBC+GdOvvF0WpTXN14gsJ79bH7LbC42CCCeHe758v/Wcb9/z+Xsk6L4u/syfDj4gfDt7HXvh74J1yx0eK6udOt9R0K1uY7CabMk8kaMnyNI/zvswX75Nd3qnhLS9fv7W8vNPsru608SLazSwq8luHXY+xuqb04OMcUAfInh39vv4jWXwvfW/EFp4GN54i8H6B4q0JbS3ura20j+178WKR3ryTOZ44POhmeSPyMhZE+QYkrorT9qX4mXPxJ/4Vi158PV8YN4vm0BPEy6LdNpDRx6HHq2P7P+2+Z9q/eInl/a/9X++6fu6+hW+DnhKXSG09/CvhttPfSf8AhH2t/wCzYPs7adjZ9i2bP+Pf/pj9z2rKl/Zh+GcvwzTwS3w78Et4Njm+1LoX9hWv9mJN97f9m2eXv752ZoA+TfjL+3D8RviL+zJ4lm0W98GeDdR0j4a6p4g1jUm+0v8Abp0urzTkOmTpPH9l/eWrzRu/2j/j4t0/6aP6z+1jZ+LPGeofAfQtB8Vf8I/Y+KPE/wBj1l0e+juL1Y9Ev75E8+yvbWRI/wDRWygf55Hjc/JG8c3r3i/9nP4f+OrLQ7XXPAvhHWrfwzC9po8V9o9tcJpEDIiOluGT9yhSONMR44RB2ro73w3pt7NpMsmm6fM2gz/adPL26SHT5PJkg8yA9Y38maRMp/BJInRzQB8f6v8At+fELQvhPN46mtfBOpab4i8C+KvGOg6Va2d3Hd6LJo6I8cN3N57i6SQyIknlx2vluAnzlxj1z9o7XPGvgj9l+zudY1yw/wCEqbxR4dgvL3w/DPplv5c2v2Mbwp5k8kmzyHeN/wB5+8G/5E3+XXf2f7N/w/03UfFF1a+BfBdveeOI5ofEMsWjWySa+khfzEunCZnD733iTfnefWul8UeHLLxZp32TUrK11C186G48m6iSaPzI5EkjfY4I3JIiOh7OgPUCgD5aj/a7+KXirUbO98PjwDeWvjTUPFGheGNIfT7o6hpd5pSXfkz30y3XlzxyPZeXJCkcBje8hxI+z58jVf8Agop4w+IWkaPffDnw3bapa+NNas9C8PvJZw3Fx5/9kSane74ptRsY5/L+SAJ58BDx3T/vNiRv9TeH/gn4N8KfELUvFmk+EfDem+K9cTy9R1q00uGC/wBQT5PlnnRPMkHyJ98n7g9Kp6z+zt4B1/4fv4UvPBHhG98LSXbX0mj3Wj20lg87P5rzeSUMfmF2d9+M7yTQBN8ENf8AFHib4VaJqHi7Ql8N+Jprb/iZaaJ0k+yzg8/6t5E+fG/HmPs343v1rtqxfCHg/SfAPhqx0fQdL0/Q9J0+PyLWwsLVLe3tEH8CRphEH0raoAKKKKACiiigArLu/wDkcLH/AK8rn/0OCtSsu7/5HCx/68rn/wBDgoA1KKKKACiiigAooooAKKKKACiiigDy/wCNfwU1XUPFVv8AED4f3Gn6V8SNKtFsmW9d4tM8W2CO8g0vUjGrusYeSV7e6RHmspppHRJoZryzvOfubbSv2xfCtn4p8LXmoeAPil4Au59Phm1CySTU/CV+yQyXWkapapLsubOdBbNLAs3k3MJtLu0uAy2F/H7hXj/xi+FuveCfinL8W/h/Y/214mbSrXRPEnhx5o4v+Eu0m1muZ7eK2llZY7bULaS9vHt2d0t5/tMsFyUDwXliAaHwU/aNuPHfiq48H+MfCuofDz4hWVo17/ZF5eQXlrrdrG6QzX+l3cTYurNJ3VD5iQXUQmtmubW1+1W4k9Qry/WdG8G/ttfBrSdW0nVtQijiu21HQNf05DZaz4W1SAy2zyRpcR77a8gc3FtPa3MRBBurS6geN7i3Y+Cnxr1XUPFVx8P/AIgW+n6V8SNKtGvVayjeLTPFtgjpGdU00SM7rGHkiS4tXd5rKaaNHeaGazvLwA6D41/AHwb+0X4Vt9H8a+HtP16zsbtdR0+SZSl1o96iOkV9ZXCFZrO8iEjmK5t3jmiLbkdW5ry/+0PiP+x7+7urXxB8YvhXB+6tH061a78ZeEbZPnL3rTXJk123SPzED28f9pgW9uhh1We4muY/oCigDjvgN8UvDPxq+Gtv4n8G+I9B8W+GtVvLxrLVtGv4r+xvAl1LGxjmiZkfa6Mp2k4ZSOoNdjXhniX9kez1nxTqvjz4e6x/wq34m6jezHU9e0vS7W4h8WLC5S3ttatpE/0+3j8uJVZZIbyGISxW13arPNvf4T/bOt/CXirTfB/xl03T/hT441i7istM3X8994X8RTTuFtbfTdamtraG4vJSWQWEqQ3pe3nZLeS3WO5lAPcKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMrxl/wAilqn/AF5Tf+gGtWsrxl/yKWqf9eU3/oBrVoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACsu7/wCRwsf+vK5/9DgrUrLu/wDkcLH/AK8rn/0OCgDUooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMrRP8AkJ61/wBfyf8ApPBWrWVon/IT1r/r+T/0ngrVoAy/G3/Io6r/ANeM/wD6Aaj/AOEbvf8AoPar/wB+7X/4zUnjb/kUdV/68Z//AEA1qUAY/g66S50SSaF45I5Lq5dGT+P9/JWxWX4T/wCQXJ/1+XX/AKPkryX4x/tS3nwm+N3hfwmNI0TUl8TXdnbRo3iFYNYl86Z43mtdPWF3mgt1TzJ5Hkj2R7yN+w0Ae3UV4X8Jv2trr4g+O9Btrrwra6X4Z8ZyanF4b1JNU8+5vPsUmx/PtjDH5PmIryR+XJP8iHf5de6UAZfhP/kFyf8AX5df+j5K1Ky/Cf8AyC5P+vy6/wDR8lalABRRRQAUUUUAFFFFABRRRQAUUUUAGKOtFFABRRRQBl+Nv+RR1X/rxn/9ANalZfjb/kUdV/68Z/8A0A1qUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/8jhY/wDXlc/+hwVqVl3f/I4WP/Xlc/8AocFAGpRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAHh/xJ8J6r+zr8Zdb+LHhvTNQ1/w74otLS38deHNNt3mvVNqJEi12wt4hm6vEgdILqDa9xdWtnZC3Yy2MVne9h4/8A+Ff2r/AIWaLfWOtebay+R4i8J+LPDt5DJc6ZO0LfZ9S0+4xJE26GZ1+ZZILiCeWGVJreeWKT0Cvn/xr/xhV8U5vF9v/wAS/wCCXib7be+NIh89t4P1iWaKRNbROPsun3G68OoupeOOdre9aOFH1W9YA6D4W/tCa9pfjux8AfFLQf8AhHfFt55lvo+v2gjXw347lhjaaU6d+/kntrgW6+e9jeBZVCXX2eS/hs57sewVz/xS+Fug/GjwJfeG/Elj/aGk6h5bOizSW80EsUiyw3EE0TLLBcQzJHLFPE6SwyxRyRujorDz/wCFvxS174Z+O7H4a/Eq+/tDVtQ8xfCXi1oY7eHxrFFG0r286RqsUGsQwo8ksEapFcxRSXVqiIl3aaeAemeEv+QbP/1+3X/o+SpPFnhPS/HvhXUtC13TNP1rRNatJbDUNPv7dLm1v7eVCksMsTgpJG6MysjAhgSCCDUfhL/kGz/9ft1/6PkrUoA+f/8AhBPiP+yJ+88EjxB8X/hzH18IajqjX3jLT5ZPvS2WtarfrHeW4kCubXUJFlQXFw8d6Y4LbTj6h8FPjv4Z/aD8K3GreGbrUJI7G7awvrPU9Ku9H1PS7gIknk3VjeRRXVtI0UsMypNEheGeGVQY5Y3bsK8v+Nf7J/h74veKrfxZp93qHgP4l2NounWXjrw3b2Sa/bWQd3axaS5t54bmzYySMba6imhEjLOqLcRQzRgHqFFfP/8Aw1zr37Ov+j/tBaP4f8F6FD+6X4ladqka+DbhvuxC9+0ulzo9xOySMIpxPZxmS3t11K4uZo4m+gKACiiigAooooAKKKKACiiigAooooAyvGX/ACKWqf8AXlN/6Aa1ayvGX/Ipap/15Tf+gGtWgAooooAKKKKACiiigAooooAKKKKACiiigAooooAKy7v/AJHCx/68rn/0OCtSsu7/AORwsf8Aryuf/Q4KANSiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAytE/wCQnrX/AF/J/wCk8FatZWif8hPWv+v5P/SeCtWgDL8bf8ijqv8A14z/APoBqP8A4TvRf+gxpn/gUlSeNv8AkUdV/wCvGf8A9ANalAGX4T/5Bcn/AF+XX/o+SvMfjp+z74k+N2vxWcvi7T7XwW11p97NpsmhedqEE1rdJcb7W985Eh3mOMfvIJnT94UdN42eleDWc6LJ5qIkn2q63or78fv5K2KAPCfhL+yRqHw38ZeH5rrxVFq3h7wXLqcnh3T00r7PcQfbpC7/AGqczP5/lozohjjh4f59/Fe7UUUAc34c8MadfWc802n2c80l5dbnkhRz/r5K0P8AhDdJ/wCgTp3/AIDJ/hR4T/5Bcn/X5df+j5K1KAMv/hDdJ/6BOnf+Ayf4Uf8ACG6T/wBAnTv/AAGT/CtSigDL/wCEN0n/AKBOnf8AgMn+FH/CG6T/ANAnTv8AwGT/AArUooAy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8K1KKAMv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACtSigDL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAOY8V+FNLtfCuqSR6dYRvHazOjrbp8nyGtP/hDdJ/6BOnf+Ayf4UeNv+RR1X/rxn/9ANalAGX/AMIbpP8A0CdO/wDAZP8ACj/hDdJ/6BOnf+Ayf4VqUUAZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hWpRQBl/8ACG6T/wBAnTv/AAGT/Cj/AIQ3Sf8AoE6d/wCAyf4VqUUAZf8Awhuk/wDQJ07/AMBk/wAKP+EN0n/oE6d/4DJ/hWpRQBl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4VqUUAZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/wAIbpP/AECdO/8AAZP8KzbvwppZ8U2cf9m6ftktZ3dfIT+/BXTVl3f/ACOFj/15XP8A6HBQAf8ACG6T/wBAnTv/AAGT/Cj/AIQ3Sf8AoE6d/wCAyf4VqUUAZf8Awhuk/wDQJ07/AMBk/wAKP+EN0n/oE6d/4DJ/hWpRQBl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4VqUUAZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hWpRQBl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FalFAGX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hWpRQB83aF4T0v9i74s6H4V/sywh+C3jFntNDnubdBB4E1lpoI7XRY5ADtsL7zpRaJKEjtJ7dbKKRkvNOsrf1/wCJnwC8HfGDwPf+HfEPh2wvdK1AJvWNTbTwyI6yRTwzxFZYJ4pUSWKeJ0likjSSN0dFYdF4s8J6X498K6loWu6Zp+taJrVpLYahp9/bpc2t/byoUlhlicFJI3RmVkYEMCQQQa8f+G3izVf2dfjLonwn8SalqGv+HfFFpd3HgXxHqVw816ptRG8uhX9xKc3V4kDvPaz7nuLq1s703CmWxlvL0A534Z/E5Pgfren+A/ixavePqOpyab4a8dton/Et8RiS5aKKHUpbeEWumamZmig2SeTb3stxbmz/AHk0lhZ+/f8ACG6T/wBAnTv/AAGT/Cs//hE9L8e+A9a0LXdM0/WtE1pr+w1DT7+3S5tb+3lklSWGWJwUkjdGZWRgQwJBBBrzPwn4s1X9lHxVpvg7xjqWoa14A1q7i07wj4u1G4e5utNuJXEcGi6vO5LySO7LHZ6hISbolLa5Y3xgn1QA9c/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hXgU37IfiL9m2Zrj4G2/hG78OykyXPw/8AGV1ef2Wj/cQaVqK/aZNFgSNlzZpaXVnstIIreCxLzzyfSNFAHlfwM+L3gv48f2pZ2nh2/wDDvibw75S634c8Q6IdO1XSWk3hWKMNlxbtJDcRx3lq89nO9rOIJ5hExHoH/CG6T/0CdO/8Bk/wrk/jp+zR4V+P39l32qWn9n+LfDPmyeGPFmnxQpr3hOeXZvmsbh0fy9/lRrLEyvBcxqYbiKaF3ibz/wD4XF47/ZJ/c/FiT/hNvh/H8/8AwsjTdPt9O/4Rm1T5N3iG18//AK5SSajYQrajzLmSe10y2tfOlAPbP+EN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8Kk8J+LNL8e+FdN13QtS0/WtE1q0iv9P1CwuEubW/t5UDxTRSoSkkboysrqSGBBBINaFAGX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hWpRQBl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FalFAGX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hWpRQBzPirwppdv4Y1GSLTbCN47aR0dYE/d/JWl/whuk/9AnTv/AZP8KTxl/yKWqf9eU3/oBrVoAy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8K1KKAMv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACtSigDL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/AAhuk/8AQJ07/wABk/wrUooAy/8AhDdJ/wCgTp3/AIDJ/hWbd+FNLPimzj/s3T9slrO7r5Cf34K6asu7/wCRwsf+vK5/9DgoAP8AhDdJ/wCgTp3/AIDJ/hR/whuk/wDQJ07/AMBk/wAK1KKAMv8A4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8ACG6T/wBAnTv/AAGT/CtSigDL/wCEN0n/AKBOnf8AgMn+FH/CG6T/ANAnTv8AwGT/AArUooAy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8K1KKAMPwrYw2N7rEMEMcMKXg2oibB/qIK3KytE/5Cetf9fyf+k8FatAGX42/5FHVf+vGf/0A1qVl+Nv+RR1X/rxn/wDQDTftet/9A3Sv/Bg//wAZoAd4T/5Bcn/X5df+j5K1Ky/Cf/ILk/6/Lr/0fJWpQAUUUUAZfhP/AJBcn/X5df8Ao+StSsvwn/yC5P8Ar8uv/R8lalABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBl+Nv+RR1X/rxn/9ANalZfjb/kUdV/68Z/8A0A1qUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/8jhY/wDXlc/+hwVqVl3f/I4WP/Xlc/8AocFAGpRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAVz/xS+Fug/GjwJfeG/Elj/aGk6h5bOizSW80EsUiyw3EE0TLLBcQzJHLFPE6SwyxRyRujorDoKKAPD/gN8U9a+Gniu3+GvxGvGvtV1C7vE8J+LJIo4YfGscTSyyQTLGqRW+rxRRySSwRqkVzFG91bKqJd2un+weLPCel+PfCupaFrumafrWia1aS2Goaff26XNrf28qFJYZYnBSSN0ZlZGBDAkEEGuL8ffBTSvjl4D+w31xqGlalpWsXGp6HrmmOkWp+Hb9JJ0jvLWR1dFkCSSRskiPDNDNNBNHNBNLE9P4KfGvVdQ8VXHw/+IFvp+lfEjSrRr1Wso3i0zxbYI6RnVNNEjO6xh5IkuLV3eaymmjR3mhms7y8AOP8A+FpXn7Df/Ep+IF94g1v4Vj/kCeNp4brVLnw1EOWs9enVZJFt4Yw0iazcEReRE638sc8S3eo/QFFfP/8AyYB/2b//AOqq/wDwf/8ATV/2Df8AkFAH0BRRRQAUUUUAeH+LP2VtV+HnirUvGXwf8Rah4Z1u9u5dV1Dwjf37y+D/ABTcO5klWWB45m0uSZ5LmRrrTBCXurk3N1DqJTyH6D4KftM2/wARfFVx4M8SaPqHgr4l6TaNc6hoN5DO1rdJG6JLc6XfvFHDqlmplt2MsH7yEXlsl1DaXEn2dfUK4/41/AHwb+0X4Vt9H8a+HtP16zsbtdR0+SZSl1o96iOkV9ZXCFZrO8iEjmK5t3jmiLbkdW5oA7Civn/+0PiP+x7+7urXxB8YvhXB+6tH061a78ZeEbZPnL3rTXJk123SPzED28f9pgW9uhh1We4muY/YPhb8UtB+NHgSx8SeG77+0NJ1DzFR2hkt5oJYpGimt54ZVWWC4hmSSKWCVElhlikjkRHRlAB0FFFFABRRRQBleMv+RS1T/rym/wDQDWrWV4y/5FLVP+vKb/0A1q0AFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABWXd/8AI4WP/Xlc/wDocFalZd3/AMjhY/8AXlc/+hwUAalFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBlaJ/wAhPWv+v5P/AEngrVrK0T/kJ61/1/J/6TwVq0AZfjb/AJFHVf8Arxn/APQDWpWX42/5FHVf+vGf/wBANalAGP4MgW30WSNd+1Lq6X5n3/8ALeStisvwn/yC5P8Ar8uv/R8lalABRRRQBl+E/wDkFyf9fl1/6PkrUrL8J/8AILk/6/Lr/wBHyVqUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAGX42/5FHVf+vGf/wBANalZfjb/AJFHVf8Arxn/APQDWpQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFZd3/yOFj/15XP/AKHBWpWXd/8AI4WP/Xlc/wDocFAGpRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAZfhL/AJBs/wD1+3X/AKPkrk/2hPgZ/wALq0fQbrT9U/4R/wAYeCNV/wCEh8K6w1t9sh0zURa3FoTPbF0Fxby2t3dW8sW9HMVzIYpbedYbiLrPCX/INn/6/br/ANHyVqUAef8AwL+On/C0/wC1NF1rS/8AhFfiB4V8pPEXh17n7T9j83f5N3bTbE+1afceVKbe6CJv8qWKSOC5t7m2g9Ary/8AaZ+Cmq/EXTtH8SeDLjT9J+Jfgq7S80HULl3hjurczwPf6RcSorlbPUIIPIkLRTiGT7PdpBJcWdvt6D4KfGvSvjj4VuL6xt9Q0rUtKu20zXND1ONItT8O36IjyWd1GjOiyBJI5FeN3hmhmhnhkmgmilcA8v8AIvP2Cf3enaR4g8QfA+T5bXS9C0i61jVfh5KeEt7SytY5Lm60eRsJHBBG8unOyoiNp7BdK9w8J+LNL8e+FdN13QtS0/WtE1q0iv8AT9QsLhLm1v7eVA8U0UqEpJG6MrK6khgQQSDWhXh/izwnqv7KPirUvGPg7TNQ1rwBrV3LqPi7wjp1u9zdabcSuZJ9a0iBAXkkd2aS80+ME3RL3NspvjPBqgB7hRWf4T8WaX498K6bruhalp+taJrVpFf6fqFhcJc2t/byoHimilQlJI3RlZXUkMCCCQa0KACiiigArx/4pfsjWes+O77x58PdY/4Vb8TdS8s6nr2l6Xa3EPixYY1S3ttatpE/0+3j8uJVZZIbyGISxW13arPNv9gooA8P8J/thXHg/wAVab4X+NXhvT/hJ4i1y7i07Q9QbxDBqPhfxXeyuBHY6bqDrbzPeYkiAtru0tJpnE/2ZLqK3lmX3Cs/xZ4T0vx74V1LQtd0zT9a0TWrSWw1DT7+3S5tb+3lQpLDLE4KSRujMrIwIYEggg14f/wrT4qfsr/8k7uf+FqfD+D96/hPxVrt3L4qsc/PO1hrl5NN9tzsPlWWo+Xma6fOp21tFFbxgH0BRXH/AAU+O/hn9oPwrcat4ZutQkjsbtrC+s9T0q70fU9LuAiSeTdWN5FFdW0jRSwzKk0SF4Z4ZVBjljduwoAyvGX/ACKWqf8AXlN/6Aa1ayvGX/Ipap/15Tf+gGtWgAooooAKKKKACiiigAooooAKKKKACiiigAooooAKy7v/AJHCx/68rn/0OCtSsu7/AORwsf8Aryuf/Q4KANSiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAytE/wCQnrX/AF/J/wCk8FatZWif8hPWv+v5P/SeCtWgDL8bf8ijqv8A14z/APoBpv8Awh1p/wA9tW/8Gl1/8cp3jb/kUdV/68Z//QDWpQBj+DJ1uNFkkXfte6um+ZNn/LeSvO/jh8c/Enwg8R6XIPCNpf8Aha91HTtKl1J9cWC88++uhaolta+S/n+WWjdxI8fEh2eZsNekeE/+QXJ/1+XX/o+SvLfil8DPGHj3466L4msfF3hmHRfDabrHRNW8MT38dvddJL0SR3sA+0bD5aM6P5aO+z/WPkAo/Cb9ra6+IPjvQba68K2ul+GfGcmpxeG9STVPPubz7FJsfz7Ywx+T5iK8kflyT/Ih3+XXuleE/CX9kjUPhv4y8PzXXiqLVvD3guXU5PDunppX2e4g+3SF3+1TmZ/P8tGdEMccPD/Pv4r3agDL8J/8guT/AK/Lr/0fJWpXN+HPDGnX1nPNNp9nPNJeXW55IUc/6+StD/hDdJ/6BOnf+Ayf4UAalFZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FAGpRWX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hQBqUVl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FAGpRWX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hQBqUVl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4UAalFZf/AAhuk/8AQJ07/wABk/wo/wCEN0n/AKBOnf8AgMn+FAGpRWX/AMIbpP8A0CdO/wDAZP8ACj/hDdJ/6BOnf+Ayf4UAHjb/AJFHVf8Arxn/APQDWpXMeK/Cml2vhXVJI9OsI3jtZnR1t0+T5DWn/wAIbpP/AECdO/8AAZP8KANSisv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACgDUorL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8KANSisv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CgDUorL/4Q3Sf+gTp3/gMn+FH/AAhuk/8AQJ07/wABk/woA1KKy/8AhDdJ/wCgTp3/AIDJ/hR/whuk/wDQJ07/AMBk/wAKANSisv8A4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/woA1KKy/+EN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8KANSsu7/wCRwsf+vK5/9Dgo/wCEN0n/AKBOnf8AgMn+FZt34U0s+KbOP+zdP2yWs7uvkJ/fgoA6aisv/hDdJ/6BOnf+Ayf4Uf8ACG6T/wBAnTv/AAGT/CgDUorL/wCEN0n/AKBOnf8AgMn+FH/CG6T/ANAnTv8AwGT/AAoA1KKy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CgDUorL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/woA1KKy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8KANSisv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACgDUorL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8KANSisv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CgA8Jf8g2f/r9uv/R8lalc14a8KaVc6dJv02wf/SrpPmt0P/LeStH/AIQ3Sf8AoE6d/wCAyf4UAaleP/tIfC3XtO1iz+Jnw4sfP+Img/ZLS/sI5o4V8ZaGl0JLrTJhIyRSXCQy3cthJLJCILxwGnitbm+Sf0z/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACgCn8LfiloPxo8CWPiTw3ff2hpOoeYqO0MlvNBLFI0U1vPDKqywXEMySRSwSoksMsUkciI6Mo6Cvn79oH4Tn4CX+vfGDwH4ZOsXVrZm98Y+DtP0/7RJ42treHAlsoUUka3FDGEgZRtvESOzuCALO6sPXfCcPhPx74V03XdCTw9rWia1aRX+n6hYCG5tb+3lQPFNFKmUkjdGVldSQwIIJBoA8z8WeE9V/ZR8Val4x8HaZqGteANau5dR8XeEdOt3ubrTbiVzJPrWkQIC8kjuzSXmnxgm6Je5tlN8Z4NU9Q+FvxZ8K/HHwJY+KfBPibw/4w8M6p5n2PV9E1GHULC78uRopPLnhZo32yI6HaThkYHkEVc/4Q3Sf+gTp3/gMn+FeRfFX4BXXw48c3fxI+G/h2w1LVbwR/wDCVeEgsEEHjOGNFjSeB5CsVvq8MSqkU7skVzHGlrdMiJaXengHuNFcX8LfEHgv40eBLHxJ4bt9O1DSdQ8xUdtPNvNBLFI0U1vPDKqywXEMySRSwSoksMsUkciI6Mo6D/hDdJ/6BOnf+Ayf4UAalFZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FAGpRWX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hQBwfxr/ZP8PfF7xVb+LNPu9Q8B/EuxtF06y8deG7eyTX7ayDu7WLSXNvPDc2bGSRjbXUU0IkZZ1RbiKGaPj/8AhqfXv2Yf9D/aCbw/pOhR8r8U9Oij0fwbIz8xW17Dc3k9zpVxuEkYad5bOUrbhbtbm8jsU9s/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/woATxl/yKWqf9eU3/oBrVr5e8Wfsd6t+zZoeo6r8D7m1fTIoJCfh34o1Rh4ZRXXaXsLs291eaSYVWERW1uJNOWGB4UsoXn+1w+m/Az4veC/jx/alnaeHb/w74m8O+Uut+HPEOiHTtV0lpN4VijDZcW7SQ3Ecd5avPZzvaziCeYRMQAeqUVl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4UAalFZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FAGpRWX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hQBqUVl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FAGpRWX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hQBqUVl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4UAalFZf/AAhuk/8AQJ07/wABk/wo/wCEN0n/AKBOnf8AgMn+FAGpWXd/8jhY/wDXlc/+hwUf8IbpP/QJ07/wGT/Cs278KaWfFNnH/Zun7ZLWd3XyE/vwUAdNRWX/AMIbpP8A0CdO/wDAZP8ACj/hDdJ/6BOnf+Ayf4UAalFZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FAGpRWX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hQBqUVl/8ACG6T/wBAnTv/AAGT/Cj/AIQ3Sf8AoE6d/wCAyf4UAalFZf8Awhuk/wDQJ07/AMBk/wAKP+EN0n/oE6d/4DJ/hQBqUVl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4UAalFZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FAGpRWX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hQAmif8hPWv+v5P/SeCtWsPwrYw2N7rEMEMcMKXg2oibB/qIK3KAMvxt/yKOq/9eM//AKAab/wmNp/zx1b/AMFd1/8AG6d42/5FHVf+vGf/ANANalAGX4T/AOQXJ/1+XX/o+StSuf8AAcN1H4dVbuSGe5+03PnPDGYkd/Ok+4hd9v03n/DoKACiiigDL8J/8guT/r8uv/R8lalZfhP/AJBcn/X5df8Ao+StSgAooooAKKKKACiiigAooooAKKKKACiiigAooooAy/G3/Io6r/14z/8AoBrUrL8bf8ijqv8A14z/APoBrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACsu7/5HCx/68rn/ANDgrUrLu/8AkcLH/ryuf/Q4KANSiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAy/CX/INn/6/br/ANHyVqVl+Ev+QbP/ANft1/6PkrUoAKKKKACvn/4sf8YJ/wDCTfE7S/8Akkv+leIPH2hL/wAy99+e88Q6cn/fya+sl/4+P3l1bj7b58OqfQFFABRXz/8A8mAf9m//APqqv/wf/wDTV/2Df+QV9AUAeP8AxS+FuvfDPx3ffEr4a2P9oatqHlt4t8JLNHbw+NYoo1iS4geRlig1iGFEjinkZIrmKKO1unREtLvT+w+Cnx+8G/tF+FbjWPBXiHT9es7G7bTtQjhYpdaPeoiPLY3tu4WazvIhIgltrhI5oi210VuK7CvL/jX8FNV1DxVb/ED4f3Gn6V8SNKtFsmW9d4tM8W2CO8g0vUjGrusYeSV7e6RHmspppHRJoZryzvAD1CiuP+Cnxr0r44+Fbi+sbfUNK1LSrttM1zQ9TjSLU/Dt+iI8lndRozosgSSORXjd4ZoZoZ4ZJoJopX7CgAooooAKKKKAMrxl/wAilqn/AF5Tf+gGuU+On7LngT9o/wDsubxZof2jVtA83+xtd0+9uNJ17QfO2Cf7DqVpJFeWfnLGkcv2eaPzY8xvuRmU9X4y/wCRS1T/AK8pv/QDWrQB8/8A/C4vHf7JP7n4sSf8Jt8P4/n/AOFkabp9vp3/AAjNqnybvENr5/8A1ykk1GwhW1HmXMk9rplta+dL7h4T8WaX498K6bruhalp+taJrVpFf6fqFhcJc2t/byoHimilQlJI3RlZXUkMCCCQa0K8P8Wfsn3Hw38Val4z+Ct3p/gfxFqV3Lq+ueGlt4Lbwv4/vXctJNqSpbyTW95IHlU6jabZi5ge5j1CK1itaAPcKK8f+Fv7Yug+IvHdj4A8aQ/8K7+K1z5kSeGtUeRIdclijaWZ9FvZY4otYt0hUTs9qDLBFLF9qhtJmaBPYKACiiigAooooAKKKKACiiigAooooAKy7v8A5HCx/wCvK5/9DgrUrLu/+Rwsf+vK5/8AQ4KANSiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAytE/5Cetf9fyf+k8FatZWif8hPWv+v5P/SeCtWgDL8bf8ijqv/XjP/6Aa1Ky/G3/ACKOq/8AXjP/AOgGsH+xPH3/AEM/hH/wm7j/AOTqAN7wn/yC5P8Ar8uv/R8lalZfhP8A5Bcn/X5df+j5K1KACiiigDL8J/8AILk/6/Lr/wBHyVqVl+E/+QXJ/wBfl1/6PkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvxt/yKOq/wDXjP8A+gGtSsvxt/yKOq/9eM//AKAa1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigArLu/wDkcLH/AK8rn/0OCtSsu7/5HCx/68rn/wBDgoA1KKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDL8Jf8g2f/AK/br/0fJWpWX4S/5Bs//X7df+j5K1KACiud+Lk3hmD4V+JG8aSeHYfB/wDZlwNbfX/K/spbIxsJ/tXnERmDy928OQpXOeM1+UX7O8Xi3whB+0roX7Lul+DfiVa+LpPDVt/wk/wPt9K8MeEvDwljlhvxptnc3jWbavb2iid3GoSeY91ZB0gEfzzzSbcYrW2nq3bV68q/vPT571yrlU3tfX0027vXZan6/wBFfnv/AMEfvjF4T/Y+/wCCYXjrVvFXh3xH8Lvh38KfGXiwSSav9n1CS2sotYu8gLYT3UkjQf6l+CWkjcp5iFZGpf8ABwB4x+GviT9hbwl4s134kJocU2taDq/hfSLjxAukWniItrGlSvdSWzmOS6Nta+a4jfMcSzPI8e9Ini0koqcYp6Nwu+yns3v52XVp6pXamKbco21Tml5uDa+69r78qfXr+gvizwnpfj3wrqWha7pmn61omtWkthqGn39ulza39vKhSWGWJwUkjdGZWRgQwJBBBrx/wn4s1X9lHxTpvg7xjqWoa14A1q7i07wj4u1G4e5utNuJXEcGi6vO5LSSO7LHZ6hISbolLa5Y3xgn1T5f/wCCnPwV+C//AAUI+M/wF8B6Z4P+GfjrxB8WryHxDqHjaDSrLUby28G6S6Xkxt9RUGRYrmeS2tUMUhBW8mI4ya+5vizZ6Lqvw91TRtc0vTtY0HVLOTT7/Tb22S4tL22kQxyQSxOCjxujFWRgVZSQQQaIRbhd6Pmat5K2v3txfaUZLoKTSlZaqyd/W+nrZX9HF9Tpg+acTur8ef2fv+C0nj34SeL9I8B6/pr+KvBvhyJbHT/Et6bifWtb02HbFHPf3LSsh1QJ5bzZQLcvveMoGkjt/wBbPCHiJfEWmJOv/LSvSzTJMXgFB4iNub+v6+9aHHgswpYpyVL7Jxfxr+Cmq6h4pt/iB8P7jT9K+JGlWi2TLeu8WmeLbBHeQaXqRjV3WMPJK9vdIjzWU00jok0M15Z3nQfBT416V8cfCtxfWNvqGlalpV22ma5oepxpFqfh2/REeSzuo0Z0WQJJHIrxu8M0M0M8Mk0E0Ur+c+FP2tLrXvjv448NvoOkWPh/4fzPDq1xLrudbtk+yJdJfPpnkf8AHjJl0jmSd3dx/q/9Z5fmXxc+J3wy+OIPxG+HOr6f4d+MHh+PR7XSfGOpeHb7T5rnTL7URBBDJut0l1bRJ5Jpf3MZNvJI6SxT2k6Q3tv5Z2n2HRXyp8J/+CovhP4l/FnTfAN9a2+h+MbeDUZ/E9tNdyix0VLM3ERvbS9eBYdQ0+WazulS5jMZRYmE0UE0c0EXoD/t0fDeLw1NrE2reILO3ivLSx+zXHhbVbe/mmuvM+yiOze1FxMJ9jpG6I6SSR7EJfigD2uivnvwP+3VpXiD48/ErwnrOk3Ph3TfAdgmpWusXjun9qQJp1hfXryWrxxyQPax6lZB0+d/3nOw/JVT4R/8FBdL8Vfs+RePfFXhvxL4VgbUL6xms9O0bUfEUtglq53yXH2G1fyPl5+f5E/vvigD3rxl/wAilqn/AF5Tf+gGtWvD/H/7Znw40zX77wq3iKSbWLhbe0/caXd3VnFJew77MPdRxGCPzww8vfIN5+VMnivcKACiiigDn/il8LdB+NHgS+8N+JLH+0NJ1Dy2dFmkt5oJYpFlhuIJomWWC4hmSOWKeJ0lhlijkjdHRWHj/wDaHxH/AGPf3d1a+IPjF8K4P3Vo+nWrXfjLwjbJ85e9aa5Mmu26R+Yge3j/ALTAt7dDDqs9xNcx/QFFAHP/AAt+KWg/GjwJY+JPDd9/aGk6h5io7QyW80EsUjRTW88MqrLBcQzJJFLBKiSwyxSRyIjoyjoK8f8Ail+yNZ6z47vvHnw91j/hVvxN1LyzqevaXpdrcQ+LFhjVLe21q2kT/T7ePy4lVlkhvIYhLFbXdqs82/P8J/thXHg/xVpvhf41eG9P+EniLXLuLTtD1BvEMGo+F/Fd7K4EdjpuoOtvM95iSIC2u7S0mmcT/ZkuoreWZQD3CiiigAooooAKKKKACiiigArLu/8AkcLH/ryuf/Q4K1Ky7v8A5HCx/wCvK5/9DgoA1KKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigDK0T/AJCetf8AX8n/AKTwVq1laJ/yE9a/6/k/9J4K1aAMvxt/yKOq/wDXjP8A+gGtSsvxt/yKOq/9eM//AKAa1KAMfwdAltokkMKpHHHdXKIqfwfv5K2Ky/Cf/ILk/wCvy6/9HyVw/j74xah4K+N3gnwm3h24vNO8aXFxaNrLXiRx2kyWtzdiNIvneQhLU79/loPMj2GQ70QA9Morwv4TftbXXxB8d6DbXXhW10vwz4zk1OLw3qSap59zefYpNj+fbGGPyfMRXkj8uSf5EO/y690oAy/Cf/ILk/6/Lr/0fJWpWX4T/wCQXJ/1+XX/AKPkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvxt/yKOq/9eM//AKAa1Ky/G3/Io6r/ANeM/wD6Aa1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigArLu/+Rwsf+vK5/wDQ4K1Ky7v/AJHCx/68rn/0OCgDUooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvwl/yDZ/+v26/wDR8lalZfhL/kGz/wDX7df+j5K1KACiiigAooooAK5j4l+HH8R+H54U/wCWiV09J98UAfnD/wAOptH/AOFwf2x9muPsv2r7X9j3/wCj7/8Ac/8AZK+9/hx4ek8N+HreFv8AlmmK3xpsO/7tS5Va7MZmOKxigsVPm5DChg6NH+DE+efjn+yj4m+LPxDTxBfeJNH1ax8Mw6pP4Y0+HQUtNYt5r3TpLR7WTUPP2PaZcv5fkIXKQeY7+T8/I/D39gzxVrvw28Onx14ssj4g0/RfDWlWkVnovk/2ZBpeoQai8M/+kyJc3EjwpG88flx/u96Q9q+uAc0Vxm58S/GP/gk9rHxY0ix0+3+KX9g23hy28SWnhi8sfDKm9sYNbWU3VvfvJclLy3bciPHHHbsygMGjuI4Lq3r/ALFn7NZvtDXwxrll8LfAPxG+HviDRdV8S6N4S8Cpor3f2dLoQ3BmFy/26zvMzG3vQkI/dXMTwQ3MdzbW/wBxV5/8dP2aPCvx+/su+1S0/s/xb4Z82Twx4s0+KFNe8Jzy7N81jcOj+Xv8qNZYmV4LmNTDcRTQu8TAHlXxk/4J/WPxj8S61fX3iW6sV8ReNIfEd0lvZf8AHxp/9kWOm3Wjud/zwXCWUbu/vjZ8m+sD47f8E2G+L/g2bSv+Em8PzRya54i1ryde8K/21YJ/asjuHS1+0xj7Vabz5M+eN7/u/wB5x7J8FPjXquoeKrj4f/EC30/SviRpVo16rWUbxaZ4tsEdIzqmmiRndYw8kSXFq7vNZTTRo7zQzWd5eeoUAfNOufsOHTfhr4k0/wD4SbzP7QuvC+p+Z/Zx/d/2C9jJs/13/Lf7D148vzP49nP0tWV4yP8AxSWqf9eU3/oBrVoAKKKKACiiigArP8WeE9L8e+FdS0LXdM0/WtE1q0lsNQ0+/t0ubW/t5UKSwyxOCkkbozKyMCGBIIINaFFAHz//AMK0+Kn7K/8AyTu5/wCFqfD+D96/hPxVrt3L4qsc/PO1hrl5NN9tzsPlWWo+Xma6fOp21tFFbx+ofBT47+Gf2g/Ctxq3hm61CSOxu2sL6z1PSrvR9T0u4CJJ5N1Y3kUV1bSNFLDMqTRIXhnhlUGOWN27CvL/AI1/sn+Hvi94qt/Fmn3eoeA/iXY2i6dZeOvDdvZJr9tZB3drFpLm3nhubNjJIxtrqKaESMs6otxFDNGAeoUV8/8A/DU+vfsw/wCh/tBN4f0nQo+V+KenRR6P4NkZ+Yra9hubye50q43CSMNO8tnKVtwt2tzeR2KfQFABRRRQAUUUUAFZd3/yOFj/ANeVz/6HBWpWXd/8jhY/9eVz/wChwUAalFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQBlaJ/yE9a/6/k/9J4K1aytE/5Cetf9fyf+k8FatAGX42/5FHVf+vGf/wBANR/8IJov/QH0z/wFSpPG3/Io6r/14z/+gGtSgDH8HSGfRZHZZI2kurr5X/g/fyV518Y/g14s+I/xW8E69o3ijw7o+n+Dbt78WV54dnv5ruWSG4tZf36XsASPyJzsAjOJED5cYQek+E/+QXJ/1+XX/o+StSgDwn4S/skah8N/GXh+a68VRat4e8Fy6nJ4d09NK+z3EH26Qu/2qczP5/lozohjjh4f59/Fe7UUUAc34c8MadfWc802n2c80l5dbnkhRz/r5K0P+EN0n/oE6d/4DJ/hR4T/AOQXJ/1+XX/o+StSgDL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/AAhuk/8AQJ07/wABk/wrUooAy/8AhDdJ/wCgTp3/AIDJ/hR/whuk/wDQJ07/AMBk/wAK1KKAMv8A4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8ACG6T/wBAnTv/AAGT/CtSigDmPFfhTS7XwrqkkenWEbx2szo626fJ8hrT/wCEN0n/AKBOnf8AgMn+FHjb/kUdV/68Z/8A0A1qUAZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hWpRQBl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FalFAGX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hWpRQBl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4VqUUAZf/AAhuk/8AQJ07/wABk/wo/wCEN0n/AKBOnf8AgMn+FalFAGX/AMIbpP8A0CdO/wDAZP8ACj/hDdJ/6BOnf+Ayf4VqUUAZf/CG6T/0CdO/8Bk/wrNu/CmlnxTZx/2bp+2S1nd18hP78FdNWXd/8jhY/wDXlc/+hwUAH/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/whuk/9AnTv/AZP8KP+EN0n/oE6d/4DJ/hWpRQBl/8ACG6T/wBAnTv/AAGT/Cj/AIQ3Sf8AoE6d/wCAyf4VqUUAZf8Awhuk/wDQJ07/AMBk/wAKP+EN0n/oE6d/4DJ/hWpRQBl/8IbpP/QJ07/wGT/Cj/hDdJ/6BOnf+Ayf4VqUUAZf/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+FalFAGX/wAIbpP/AECdO/8AAZP8KP8AhDdJ/wCgTp3/AIDJ/hWpRQBl/wDCG6T/ANAnTv8AwGT/AAo/4Q3Sf+gTp3/gMn+FalFAHNeGvCmlXOnSb9NsH/0q6T5rdD/y3krR/wCEN0n/AKBOnf8AgMn+FHhL/kGz/wDX7df+j5K1KAMv/hDdJ/6BOnf+Ayf4Uf8ACG6T/wBAnTv/AAGT/CtSigDL/wCEN0n/AKBOnf8AgMn+FH/CG6T/ANAnTv8AwGT/AArUooAy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8K1KKAMv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACtSigDz34z/s0+F/jZ4Tj0+8szpGoadcrqOja3pcUMOpaBfIrLHd2rujoJArujJIjwzRSywzRzQTSxPzvwV8crqHiq4+H/xA0Hw9pXxI0q0a9VrKy8rTPFlgjpGdU00SM7LGHkiS4tXd5bKaaNHeaGazvLz2SuN+N/wM8M/H/wAJ2+k+J7XUJI7G7W/sbzTNVu9H1PS7gI8fnWt9ZyxXVtI0Us0LPDKheGeaJiY5ZEYAteKfCml23hjUZI9PsY3jtpGR1gT5PkNaf/CH6T/0CdOP/bsn+FfG3xt/4KRWn7E8v/Ctvi1dah4i8Q6layf8I14gsLS3Q+K7QBh/pkQaJLXUIlUmZI0WC4UfaLdY1M9nY/R37OH7S3hv9pv4f2viLwzc+fZXHyOjp5ckEn8cbp/frsngcTHD/WZR9w5/rdGVb2PN753n/CG6T/0CdO/8Bk/wo/4Q3Sf+gTp3/gMn+Fcr8Y/2gfDPwFt9J/4SBtcFxr9zJaafbaToN9rV3eSRxvO+yGyhmkOI0d/udq6D4fePtJ+KfgbSPEmg3sOo6JrlrHfWV1H92eGRN6PXGdBa/wCEN0n/AKBOnf8AgMn+FH/CG6T/ANAnTv8AwGT/AApuheJdO8Q/al0++s786fcPaXP2adZPs8yY3pJs+7IO6GtagDL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FeBTfsZ6t+zlM2pfA9rC401SVb4b+LNUdfC7K/ylrG8+zXd5pBhUQiK2t1k05IYHhSxhef7XD9I0UAeV/Az4veC/jx/alnaeHb/AMO+JvDvlLrfhzxDoh07VdJaTeFYow2XFu0kNxHHeWrz2c72s4gnmETEegf8IbpP/QJ07/wGT/CuT+On7LngT9o/+y5vFmh/aNW0Dzf7G13T7240nXtB87YJ/sOpWkkV5Z+csaRy/Z5o/NjzG+5GZT5//wALi8d/sk/ufixJ/wAJt8P4/n/4WRpun2+nf8Izap8m7xDa+f8A9cpJNRsIVtR5lzJPa6ZbWvnSgHsWtaP4d8N6Pd6hqFnotjp9hC9zc3NxFFHDbxIpZ3djgKqqCSTwACa8M0L/AIKGfs8+Kv2fPD/xQ0nWotW8JeLdVk0TQvsPhTULrVNbvY5JI5Le102O2N9O6mKViI4GwkbyH5FLDZ/bN+Bt5/wUB/ZMt/D3gP4heG9H0DxhLp+pzao+k/8ACRaT4m0fctw1oVhu7fzLW7TYrPFON8LuFOH3D5T+G37BnxQ+H/7LWnHxto/jTUviJ4N+LXiHxZ4Pn+EMGgaRqmjQ31zqAa5Zdb1GfT5LW4huX/cPukiS4ijKO8by1MZfE5bK1u7XNFS/CTstGnFtpqxpKK5E476+i92bXn8UVd6q0kt2fc3wV8deAf2iPhppvjDwb/ZWs+H9WD+RcCwMDq8cjRSxSxSossM0ciPHJFIqyRujKyqykDzv9o79sD4NfsufEzTdG8a38en3Umjzavex2fhy81SPSLEzwxi+v5LWCVLG03q4+0XRih/dyfP8jY88/ZF+D3xe/YC/YUs7Kz8Ex/FX4leIvGd54g1nRU8U29l/Z8eq6pJcXDm+miWOd7WGXc+2NBM6OIwoK14h/wAFGf2DPiv8R/2uPivfeGPDeq+OfCPxy+H1voMdnZatYadZabqtp5tvDJrL3E8dw+lxC7Fz5Nkk7yyI6vGVASQr80WuRXezV+qhzNKW1r+6p25ZPTTW00uWV+bTs/Jz5U2t78vvOPxJa22v9ba7+278CPDnxqi8AXOsWLa+99aaVLPb+Hru40eyvrtQ9rZXGpxwNY291MrIY4Jp0lfzYtqnzY93tX/CG6T/ANAnTv8AwGT/AAr82viJ/wAEqPGFx4r0f4c+CYvixo/hbUPEHhLxB411vUtY0D/hC9Xm0eLTzNe21upl1pr6VdPhh8pxBalw0rE7F8z9Oa2lGKjdO75mvVJR1tuk25Wvq0k2k7oxhKTa5lb3U/RtvS/dK110d1dqzMv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACtSiszQy/wDhDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDL/4Q3Sf+gTp3/gMn+FH/CG6T/0CdO/8Bk/wrUooAy/+EN0n/oE6d/4DJ/hR/wAIbpP/AECdO/8AAZP8K1KKAMv/AIQ3Sf8AoE6d/wCAyf4Uf8IbpP8A0CdO/wDAZP8ACtSigDL/AOEN0n/oE6d/4DJ/hR/whuk/9AnTv/AZP8K1KKAMv/hDdJ/6BOnf+Ayf4Uf8IbpP/QJ07/wGT/CtSigDD8K2MNje6xDBDHDCl4NqImwf6iCtysrRP+QnrX/X8n/pPBWrQBl+Nv8AkUdV/wCvGf8A9ANR/wDCSXv/AEAdV/7+Wv8A8eqTxt/yKOq/9eM//oBrUoAy/Cf/ACC5P+vy6/8AR8lalY/g6MwaLIrNJI0d1dfM/wDH+/krYoAKKKKAMvwn/wAguT/r8uv/AEfJWpWX4T/5Bcn/AF+XX/o+StSgAooooAKKKKACiiigAooooAKKKKACiiigAooooAy/G3/Io6r/ANeM/wD6Aa1Ky/G3/Io6r/14z/8AoBrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACsu7/AORwsf8Aryuf/Q4K1Ky7v/kcLH/ryuf/AEOCgDUooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvwl/yDZ/8Ar9uv/R8lalZfhL/kGz/9ft1/6PkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKr38fmWj7ag8VeKdO8D+GNS1rWLy307SdItZb29u522xW0Eal5JGPZVUEk+gr5Y/ZZ/4Ki6h+0x8GPin4wh+D3jO0m8B69BpOi+H7OVbvWfEsF3bWd1YXDwyJClk0sV7A8iTSFLdd7SyqqOVlzVpP+Vcz8ldJfe3ZLd62Ts7Uot8v952Xm/8AgdXsrq+6PnP/AIKy/sOaj+0T4l/taNI547exW1uI5XaMERSvMjo6kMkiMzMrqQyMqspDAEe+/wDBMb9ni+/Z9+GX9m3U3nT3l09/P/zz3ukcfyf98JXoP7Knx5tv26v2FfC/xXu/DP8Awi8vjbw/NqD6R9u+3fYG+dDH5/lx+ZjZ97YvXpWH+2v+3x4f/YY8QeEfDMcPg8eJfGMN3fxXHi/xZF4U8OaTY2rQJNc3uovFOYg0tzbwxJHBK8ksyjCqGdfaxmeYt4SOW1ZaRdvN2vppvbV9krva7PPo5bS9t9bp35rX10t8ns9lbduy30ND9uH4T6x8Q/EPwz1DT/C3jbxRp/hnV7q61O38KeIk0LVI45NOngjeOc3tl/y0kQOEn+4DxXzp4u/Yy+K2paV8JYW8F+dqHgqw0RNKvNLg8Oi48PiDV5Jp7W9vZ0+1p5GnC1SP+zeJJ/P3v5cma93/AGrP29fHH7Mfwk0f4iR/DPwx4s+HsVho174g1nTfHSkk6heR23laNF9jJ1NoxIkoMzWQmWWERF3Zkj+pFbcoPrzyMV5Li1e/RtfNb/nvs+h2KSe3VJ/er/8ADrdbOzPh23/YRjfxHrmh/wDCp9Gs9F1D4r2viPUryFNPhsdf0XyLrEboj+fIkEkrxvBPGEP2h/L8yN3xT8B/sL+KPg34Vtrnwj4J0Gx8TXXhfxrpN+Lx7aa2vvOni/sO0u03/vrVIIo0jj+dII98eE3mvu6ipKPz3+Cf7BHiGexs9B17wDfweAh8SrbxA+ka9HoNvjTk8OXFpM72WkYsdj3bohgjR/MR/wB5v+evq39jf4cat8Hf2edH8NaxZ/2fNo9zqFva2fnrKtvYi/n+yImzgILUw7E6xjCdq9booAKKKKACiiigAooooA8P8Wfsn3Hw38Val4z+Ct3p/gfxFqV3Lq+ueGlt4Lbwv4/vXctJNqSpbyTW95IHlU6jabZi5ge5j1CK1ita0Phd+2LoPiPx1Y+APGkP/Cu/itc+ZEnhrVHkSHXJYo2lmfRb2WOKLWLdIVE7PagywRSxfaobSZmgT2Cuf+KXwt0H40eBL7w34ksf7Q0nUPLZ0WaS3mglikWWG4gmiZZYLiGZI5Yp4nSWGWKOSN0dFYAG4Bz92s27GPF9j/153P8A6HBXht1rnxE/Yzj23kGv/GH4Vw/ubOTT7Zrrxl4Rt0+cvevNcl9ct0j8xA9vH/aQFvboYdVnuJrmPN8Hf8FMfg18TviRoun6P4wt5ry9imtVhuLW4tJIrh5EDWkomRTBdI0bJJbS7ZI3VkdVZSo2o4WtW/gx5jOpWhD45H01RVewv1v4N61lS+ONIsfGtroNxrGlx65qFvJd22nvdIt5cwxkCR0h++yIWTLDgb+3fE0N2iiigAooooAKKKKACiiigAooooAKKKKACiiigDK0T/kJ61/1/J/6TwVq1laJ/wAhPWv+v5P/AEngrVoAy/G3/Io6r/14z/8AoBrUrL8bf8ijqv8A14z/APoBqP8A4Ru9/wCg9qv/AH7tf/jNAEnhP/kFyf8AX5df+j5K1Kx/B10lzokk0LxyRyXVy6Mn8f7+StigAooooAy/Cf8AyC5P+vy6/wDR8lalZfhP/kFyf9fl1/6PkrUoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvxt/yKOq/9eM//oBrUrL8bf8AIo6r/wBeM/8A6Aa1KACiiigAooooAKKKKACiiigAooooAKKKKACiiigArLu/+Rwsf+vK5/8AQ4K1Ky7v/kcLH/ryuf8A0OCgDUooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAMvwl/wAg2f8A6/br/wBHyVqVl+Ev+QbP/wBft1/6PkrUoAKKKKACiiigAooooAKKKKACiiigAooooA4/4/8AwE8K/tQ/BvxB8P8Axxps2seEvFNt9j1Syivriya6h3Binm27xyqCVGdrjIyDkEg+H/s+/wDBOSb9kXVPjLrHw58d6r/b3xQ1K1vtOk8Y3mteKrPQ0hs7a22TRXOqCS8dvIkbzvOikCvHGWaOFFr6goqXFPmX8ycX6Oza/D13Wzd65nZJ9Hdev9fkuyPk34A/sS/Er9lj/gmpqHwY0/4vaF/b+g6Jc6f4Y8X6d4J+zvpUZUsrz2dxe3MdzKHZ+d0aFWUbMqWbe/aM/YU8SfF34gfDH4haB468O6X8U/hzoeoeHm1jxB4PGuabqltqEMKXchsY7q1MM5kgR0eOfaqvLGySK/y+/wDjL/kUtU/68pv/AEA1q1Vb963Ke73+5p+l1JqVviT1vZBGTja3+fVPXvZpNX+Fq6sfDuqf8EkvF3hjTfgP4f8ABfxT8Jr4C+AOlQxaP4b8Z+BrjxBbX2sR5CaxObfVLJWmhUnyIyhjgZ2dRvEbR/cEYYRruKs2OSBgE/SnUVpKpKV79W5P1e7/AE8kklZJIzUUreSSXotl+vq23q22UUUVmUFFFFABRRRQAUUUUAFFFFABRRRQBxvxd+0/8ItP9n/1myvxOh/4Jx+INP8A2k5pLfS4La71KULca3C3ltexB1CSTRrh5ZUCgIzglAXClQ7A/u1e2S6hb7GrhLr4R6Z/wn1jP9ni3fZZ+dn+3BXtZPn+Jy5SVBJ83fp5nBjMrpYrldR/D+JpfCD7V/wi8H2j/WbK+U/i74a+J2q/tS33xX07wLHeaJ4K8U6XpVlNNd3ceuSaPAklrqH2bT0snSeOR9Tupkfz08z7JA/SNK+1rCwWwg2LVivGbu7nefC/jrTvjtFafEzRdFl8cL/wrex1FdC1B5Lm4k8VJql7HOjR/vE+1SWFik8CYkSTzHTZ89SfDP4V+MvHEHgfQZvHHxW1bwfqHi7UG1WeHTPFPg69sLVNH3pavNqNzJqL273SRyCcz8ySSRo4+4n3JRSA/MnXfiF441DxN4E0Xxv4k+IWg2mh+HPDQ1fVJNS8TWEmlv8A2vd/a3vU0uDy5JLu0hgg8zUp7Xy/9cm/fJXbLYfFyTxr8XLy68VfESz8SrZeK4LLQrTwj4iezu4As/8AZT2uoG5k0pJEjW1dPskEFxJ9x98nmF/sjxh8AfAvxC8e6V4q17wX4T1vxRoJT+zdXvtIt7jUNP8ALk81PIndDJHtf5/kP367igDg/gR4CPgD4V6PZtfeIr+8a2juLyXW9Uur67kndMyb3nd3T5z9wYjToiJ0HeUUUAFFFFABRRRQAUUUUAFFFFAGVon/ACE9a/6/k/8ASeCtWsrRP+QnrX/X8n/pPBWrQBl+Nv8AkUdV/wCvGf8A9ANalZfjb/kUdV/68Z//AEA1H/wnei/9BjTP/ApKAJPCf/ILk/6/Lr/0fJWpWX4T/wCQXJ/1+XX/AKPkrUoA8h8A/tb6L48+JsHh230fxJa22oXOoWGla/cQQf2ZrV1YuUuoINkzzZjKSfPJHHG/kvsd69er5x+E/wCzN4z8KfEHw1b6tceG28G+Add1vXNGuba5mk1PUP7Q+07IJ4DCkcHkJezjfHI/mbI/kj5r6OoAy/Cf/ILk/wCvy6/9HyVqVmz+E9LuJnkl03T5JJPvu9uhL03/AIQvSP8AoE6b/wCAqf4UAalFZf8Awhekf9AnTf8AwFT/AAo/4QvSP+gTpv8A4Cp/hQBqUVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAalFZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FAGpRWX/wAIXpH/AECdN/8AAVP8KP8AhC9I/wCgTpv/AICp/hQBqUVl/wDCF6R/0CdN/wDAVP8ACj/hC9I/6BOm/wDgKn+FAGpRWX/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hQBqUVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAHjb/kUdV/68Z//AEA1qVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAalFZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FAGpRWX/wAIXpH/AECdN/8AAVP8KP8AhC9I/wCgTpv/AICp/hQBqUVl/wDCF6R/0CdN/wDAVP8ACj/hC9I/6BOm/wDgKn+FAGpRWX/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hQBqUVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAalFZf/AAhekf8AQJ03/wABU/wo/wCEL0j/AKBOm/8AgKn+FAGpRWX/AMIXpH/QJ03/AMBU/wAKP+EL0j/oE6b/AOAqf4UAalZd3/yOFj/15XP/AKHBR/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hQBqUVl/8ACF6R/wBAnTf/AAFT/Cj/AIQvSP8AoE6b/wCAqf4UAalFZf8Awhekf9AnTf8AwFT/AAo/4QvSP+gTpv8A4Cp/hQBqUVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAalFZf/CF6R/0CdN/8BU/wo/4QvSP+gTpv/gKn+FAGpRWX/wAIXpH/AECdN/8AAVP8KP8AhC9I/wCgTpv/AICp/hQBqUVl/wDCF6R/0CdN/wDAVP8ACj/hC9I/6BOm/wDgKn+FAGpRWX/whekf9AnTf/AVP8KP+EL0j/oE6b/4Cp/hQBqUVl/8IXpH/QJ03/wFT/Cj/hC9I/6BOm/+Aqf4UAHhL/kGz/8AX7df+j5K1Ky/+EL0j/oE6b/4Cp/hR/whekf9AnTf/AVP8KANSisv/hC9I/6BOm/+Aqf4Uf8ACF6R/wBAnTf/AAFT/CgDUorL/wCEL0j/AKBOm/8AgKn+FH/CF6R/0CdN/wDAVP8ACgDUorL/AOEL0j/oE6b/AOAqf4Uf8IXpH/QJ03/wFT/CgDUorL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/woA1KKy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8KANSisv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAKANSisv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8KAE8Zf8ilqn/XlN/6Aa1ay/wDhC9I/6BOm/wDgKn+FH/CF6R/0CdN/8BU/woA1KKy/+EL0j/oE6b/4Cp/hR/whekf9AnTf/AVP8KANSisv/hC9I/6BOm/+Aqf4Uf8ACF6R/wBAnTf/AAFT/CgDUorL/wCEL0j/AKBOm/8AgKn+FH/CF6R/0CdN/wDAVP8ACgDUorL/AOEL0j/oE6b/AOAqf4Uf8IXpH/QJ03/wFT/CgDUorL/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/woA1KKy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8KANSisv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAKANSsu7/5HCx/68rn/wBDgo/4QvSP+gTpv/gKn+FH/CF6R/0CdN/8BU/woA1KKy/+EL0j/oE6b/4Cp/hR/wAIXpH/AECdN/8AAVP8KANSisv/AIQvSP8AoE6b/wCAqf4Uf8IXpH/QJ03/AMBU/wAKANSisv8A4QvSP+gTpv8A4Cp/hR/whekf9AnTf/AVP8KANSisv/hC9I/6BOm/+Aqf4Uf8IXpH/QJ03/wFT/CgDUorL/4QvSP+gTpv/gKn+FH/AAhekf8AQJ03/wABU/woA1KKy/8AhC9I/wCgTpv/AICp/hR/whekf9AnTf8AwFT/AAoA1KKy/wDhC9I/6BOm/wDgKn+FH/CF6R/0CdN/8BU/woA1KKy/+EL0j/oE6b/4Cp/hR/whekf9AnTf/AVP8KAE0T/kJ61/1/J/6TwVq1V0/SrbS7fybaGG2j/uxJsq1QBl+Nv+RR1X/rxn/wDQDWpWX42/5FHVf+vGf/0A1qUAY/g1nOiyeaiJJ9qut6K+/H7+Stisvwn/AMguT/r8uv8A0fJWpQAVm65r9n4V0O+1K+ljtbHT4XurmZvuRxou93/AVpVz/wASvB8fxC+Hev8Ah+Sb7NHr2nT6c0qruMQmjePd/wCP0AcX8FP2lrH446xJYx6H4l8N3n9k2uu2sOsR28cl/YXJfy5o/Jmkx/qyCkmyWPKb0G8V6pXhX7OvwX8Z+GfG1pr3jf8A4RmG+0jwrY+FLaPRL2e7juvJkeSa6keSCDZ5n7v9x8/l+Wf3j7691oAKKKKACiiigAooooAKKKKACiiigAooooAKKKKAPN739oPRtK+NF54NvINYsZ9P0SfXJdSuLfydP8iBoPORXfBk2C6gO9EMfLp5nmRugz/gj+09p/xw1UWMeh+JvDtxcaTa6/p6axBAn9p6dOXEdzH5M0m37mCknlyJ5ib4xXN/FH4N+OviJ+0O+oCx8JQeD5fC+o+FGu31qf8AtQx332SR5/s32Py/3ckBQR+f84cPvT7lO/Zw+CHjPwn4u0vW/Gn/AAi8Fx4d8JWvhKyTR7ya6jvPLkDzXcnmQQ+SZNkeIR5mzD/vHoA96ooooAKKKKACiiigAooooAKKKKACiiigAooooAyvE2vx+HtCvL94by6XT4XneG0iea4m2IW2Iicu56BB1zXkA/bS0+zurrT7nwZ43tfGEOrW+ixeFnWxk1K8kntTdo8bpdG12eSkzu5n/d+Q+/HyZ9Y8Uf2ovhjUJNFSxm1z7NJ9gS+leO2efbhBIyB3WPfjdsBOK+bfCn7O/wAVNMg0HxFeaZ4Dm+Ieh+I/+Eivbp/EV1PbeJ5J7G4sZ43k/s9JLFI45o/IREnCJHsfu7gHv3wn+KOn/GPwFp/iHT476C21DfG1veReXPazRu8c0Dr/AM9I5VeNtpdcxnGRzXYV53+z18OdQ+FnwqtdK1ea0vNYnvb7VtQe3YiEXV7fT300ce7J8tJJ3RPZB9yvRKACiiigAooooAKKKKACiiigAooooAKKKKACuB+NXxnHwa8MjUo/DPijxVje80OkQwboII0d5J5HuJoYUQbem/e5OER+3fV5H+1N8MNU+Lvhm00uz8G/Dnxvpokka4sPF881vHBOYwsFxBIkE5R498g4RH+f5JE53gGPP+3H4Zk1uxitNI8UXuj3CaQ1/rcVvBHY6E+qbPsS3XmTRz5ffHv8uOQRiRN+zNe6V8mr+xr8QrJLjQbnXtF8RaD4qTw5N4j1q+u54tW8/Tkt47oxQ+XIk32hLVPnedHj8yQ/vMfP9ZUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFAHmPjD9pzw74H+Mug+A74X0mqa5bXFw9yiKLPTI4oZJgbp3ceX5iQTlMB/8AUPu2DBNP4J/tUaX8ddXjs7fQfE/h2a+0mHxDpY1eCBP7Z0+RyiXUPkzSbBnZ8k/lyDzE+TrXnvxG/YNv/FHx0tfE2nePvE1vY6hqt7qWtWl0tjIFE2nyWiR27fYvN2bDHHsef5Iy3llJMPW5+zZ8BPGngrxToeq+MpPC8cvhDwlD4R0/+x7ma4/tBBJG8l3J5kMfkl/Ig/cp5gB3/vOgoA+gKKKKACiiigAooooAKKKKACiiigAooooAKKKKAOe+I3ja1+Gvw+17xFepNPY+H9Pn1K6WBMyOkMbyOEH9/wCTpXnlz+1XJZ+D9G1C8+Hvjyx1DxLfpYaHojPpcl/rTSQPPvj8u9eFEjgjkdzPJHjZ9M+jeM9Pk1rwlqlrHpOl6xJdWc9utjqb7LO/3pjyZn8uTbHIcI58t8An5H6H5l8Mfsc+LvAHiW38XeF9B+HHhTU7DxJBrNl4N0vUZ49A2DTriwun85LKMpPOk4culp/y6x5380AfRHwn+KOn/GPwFp/iHT476C21DfG1veReXPazRu8c0Dr/AM9I5VeNtpdcxnGRzXYV53+z18OdQ+FnwqtdK1ea0vNYnvb7VtQe3YiEXV7fT300ce7J8tJJ3RPZB9yvRKACiiigAooooAKKKKACiiigAooooAKKKKACvPfi58YYfhVJpFquk694i1vxFdtbaZo+kJAbq9KKZZH3zyRwxxpGnLySIOQMl3QV6FXhv7Vn7OU3xr1fwTrKeHfBPjT/AIRW6ujNofiwbLC9SeDZv3+RcbJI5EjcfuDn5+UoAseIP2wtM8L+LI9LvPDPi6H7PJpUOu3flWTWnhe41FwkFvduLrJkG9N724mjQSI5fZzXtVfH3gz9hnx74K8KN4O/tbw1q3hXxInh6XXNRnup4tQsJNO8hJoLWHy3SZJI7WFEeSZPL5+STv8AYNAGX42/5FHVf+vGf/0A037Xrf8A0DdK/wDBg/8A8Zp3jb/kUdV/68Z//QDWpQB8x6b8MPDWuP4kvL7w7od5dvr+r7p57CKSRv8AiYz9WKk1sf8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQAf8KS8F/wDQo+F//BVB/wDE0f8ACkvBf/Qo+F//AAVQf/E0UUAH/CkvBf8A0KPhf/wVQf8AxNH/AApLwX/0KPhf/wAFUH/xNFFAB/wpLwX/ANCj4X/8FUH/AMTR/wAKS8F/9Cj4X/8ABVB/8TRRQB//2Q==)

Below is the formula to calculate the Euclidean distance in Python:



Now, that we have all the distances to our unknow movie, we need to **find the k-nearest movies by sorting the distances in decreasing order**.

Let’s assume k=3.

|  |  |  |
| --- | --- | --- |
| **Data Labels** | **Distance from ?** | **Type** |
| Moonlight | **14.86606875** | Romance |
| Beautiful Woman | **15.29705854** | Romance |
| In the mood for love | **18.86796226** | Romance |

The three movies are *Moonlight, Beautiful Woman, and In the mood for love*. The kNN algorithm says to take the majority vote from these three movies to determine the class of the mystery movie. Because all three movies are romances, we forecast that the mystery movie. Because all three movies are romances, we forecast that the mystery movie is a romance movie.

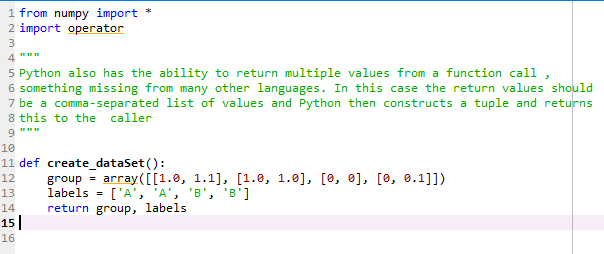
Let’s work out a simple machine learning algorithm. We’ll go over a simple example of kNN algorithm to make sure we’re using the algorithm correctly.

**General approach to kNN**

1. Collect Data
2. Prepare: Numeric values are needed for a distance calculation. A structured data format is best.
3. Analyze
4. Train (**Does not apply to the kNN algorithm**)
5. Test: Calculate the error rate
6. Use

**Prepare: importing data with python**

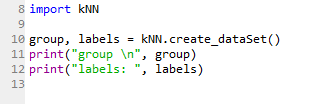
Let’s make a Python module called kNN.py, where we’ll place all the code. Add the following lines to kNN.py:



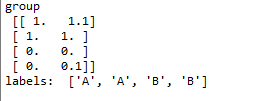
In this code, we import two modules the first one is NumPy, which is our scientific computing package. The second module is the operator module, which is used later in the kNN algorithm for sorting;

The function ***create\_dataSet()*** is there for our convenience. This will be used to create dataset and labels.

Let’s just create **App.py**. And run the ***create\_dataSet()*** function:



**Output:**



Here we have four pieces of data. Each piece of data has two attributes or features. In the group matrix each row is a different piece of data.

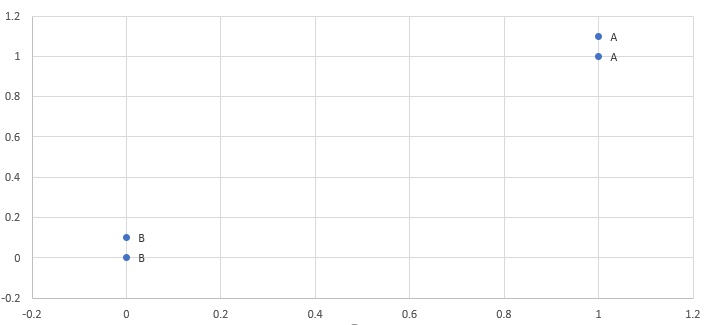
You can visualize the above group and labels like below:

|  |  |  |
| --- | --- | --- |
| Feature 1 | Feature 2 | Label |
| **1** | **1.1** | **A** |
| **1** | **1** | **A** |
| **0** | **0** | **B** |
| **0** | **0.1** | **B** |

As humans, we can visualize things in one, two, or three dimensions, but that’s about the limit of our brains; to keep things easy to visualize, we’ll use only two features for each data point.

Now that you have an idea of how to parse and load data into Python, and you have an idea of how the kNN algorithm works, let’s put it all together and do some classification.

Let’s plot a graph for the above data:



**Putting the kNN classification algorithm into action**

Now, we’ll build a function to run the kNN algorithm on one piece of data. Let’s first write the pseudocode and then in actual Python code.

**Pseudocode:**

**NOTE: *inX*** *is the the value that we want to classify.*

***For every point in our dataset:***

* *Calculate the distance between* ***inX*** *and the current point*
* *Sort the distances in increasing order*
* *Take k items with lowest distances to* ***inX***
* *Find the majority class among these items*
* *Return the majority call as our prediction for the call of* ***inX***

The Python Code for the ***classify0()*** function is in the following listing.

*kNN works like this:*

1. We have an existing set of example data (our training set).
2. We have labels for all of these data.
3. When we’re given a new piece of data without a label, *we compare that new piece of data to the existing data, every piece of existing data.*
4. We then take the most similar pieces of data (the nearest neighbors) and look at their labels. We look at the top k most similar pieces of data from our known dataset;
   1. This is where the k comes from. (*k* is an integer and it’s usually less than 20)
5. Lastly, we take a majority vote from the *k* most similar pieces of data and the majority is the new class we assign to the data we were asked to classify.