**DOCUMENTAZIONE VINMIC**

**Indice**

1. [Introduzione](#INTRODUZIONE)
2. [Requisiti funzionali](#Requisiti)
3. [Manuale utente](#Manuale)
4. [Scelte progettuali](#Scelte)
5. [Implementazioni future](#Imple)
6. [Processo di sviluppo e organizzazione del lavoro](#Processo)
7. [Conclusioni](#End)
8. **Introduzione**

Questo documento ha il compito di illustrare l’utilizzo della prima versione dell’applicazione **VINMIC**.

L’applicazione software è stata sviluppata dal gruppo formato da:

* Vincenzo Parrulli (nr matricola: 724933 – mail istituzionale: v.parrulli1@studenti.uniba.it)
* Michele Riviello (nr matricola: 724802 – mail istituzionale: m.riviello4@studenti.uniba.it)

Il nome dell’applicazione corrisponde alle iniziali dei nomi dei membri del nostro gruppo.

**VINMIC** nasce con lo scopo di simulare l’operato di un giudice, andando a stabilire determinate pene e la loro gravità per ciascun imputato già ritenuto colpevole, e infine assegnare un determinato luogo in cui scontare tale pena per un determinato periodo di tempo. Inoltre permette la visualizzazione dei penitenziari italiani, fornendo in input alcuni dati relativi ad essi.

Si è scelto di creare totalmente un nuovo dataset, invece di scaricarne uno da internet, poiché nessuno di quelli da noi ritrovati era in grado di soddisfare le nostre esigenze, affinché la nostra applicazione avesse una base di conoscenza ideale.

[Torna all’inizio](#_top)

1. **Requisiti Funzionali**

Per poter avviare in modo corretto il programma è necessario installare:

* **'numpy'**, tramite il comando da terminale **pip install numpy** per la predizione;
* **'pandas'**, tramite il comando da terminale **pip install pandas** per il classificatore;
* '**sklearn'**, tramite il comando da terminale **pip install scikit-learn** per il classificatore;
* **‘scikitplot’,** tramite il comando da terminale **pip install scikit-plot** per la matrice di confusione;
* **‘matplotlib’,** tramite il comando da terminale **pip install matplotlib** per visualizzare i risultati della matrice di confusione e del diagramma cartesiano;
* **‘seaborn’,** tramite il comando da terminale **pip install seaborn** per il diagramma cartesiano, utilizzato per l’analisi grafica degli errori riguardanti i regressori;
* **‘pytholog’,** tramite il comando da terminale **pip install pytholog**, per utilizzare la programmazione logica in Python;

[Torna all’inizio](#_top)

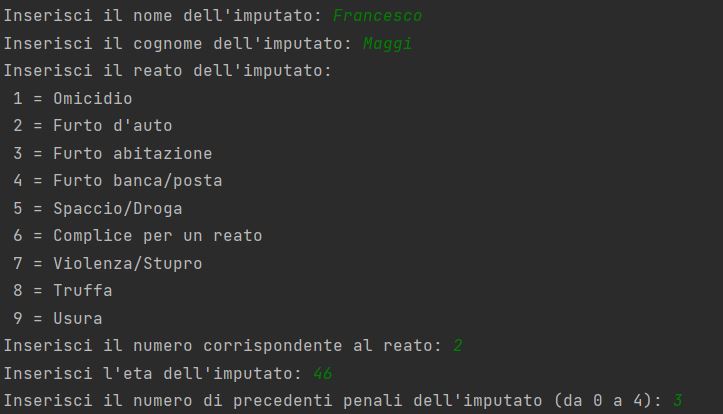
1. **Manuale Utente**

Quando l’applicazione verrà avviata, si visualizzerà la schermata iniziale a linea di comando:

![Immagine che contiene testo, caso, accessorio, screenshot

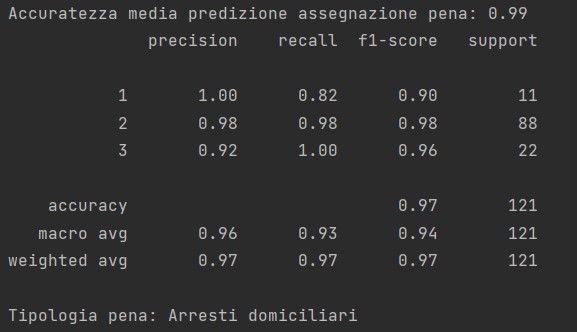
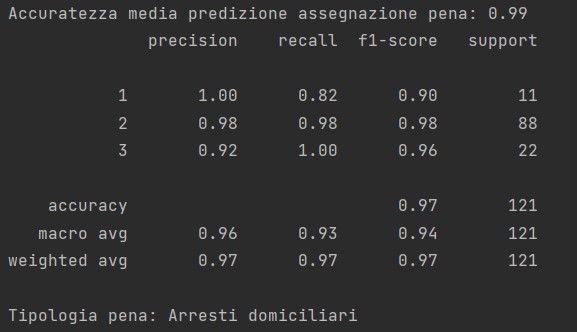
Descrizione generata automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RD0RXhpZgAATU0AKgAAAAgABAE7AAIAAAAOAAAISodpAAQAAAABAAAIWJydAAEAAAAcAAAQ0OocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAE1pa2kgUml2aWVsbG8AAAWQAwACAAAAFAAAEKaQBAACAAAAFAAAELqSkQACAAAAAzY5AACSkgACAAAAAzY5AADqHAAHAAAIDAAACJoAAAAAHOoAAAAIAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAyMDIyOjAyOjEwIDExOjQ1OjU5ADIwMjI6MDI6MTAgMTE6NDU6NTkAAABNAGkAawBpACAAUgBpAHYAaQBlAGwAbABvAAAA/+ELIGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDItMTBUMTE6NDU6NTkuNjkxPC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPk1pa2kgUml2aWVsbG88L3JkZjpsaT48L3JkZjpTZXE+DQoJCQk8L2RjOmNyZWF0b3I+PC9yZGY6RGVzY3JpcHRpb24+PC9yZGY6UkRGPjwveDp4bXBtZXRhPg0KICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICA8P3hwYWNrZXQgZW5kPSd3Jz8+/9sAQwAHBQUGBQQHBgUGCAcHCAoRCwoJCQoVDxAMERgVGhkYFRgXGx4nIRsdJR0XGCIuIiUoKSssKxogLzMvKjInKisq/9sAQwEHCAgKCQoUCwsUKhwYHCoqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioq/8AAEQgBAwNWAwEiAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8A8eooooAKK0NP1mfTYWjht7KUM24m4tI5SPoWBwKhs9QksrxrmOK3kdgQVmgSRBn0VgQKAKtFWrnUJLq/W7eK3R1IOyKBEQ4/2AMfpzUuo6vNqSIs0FnEEOQbe1jiJ+pUDNAFCitE63O2m/Yvs1iI9gTeLOMSY9d+N2ffNJp+sz6bC0cNvZShm3E3FpHKR9CwOBQBn0Vas9QksrxrmOK3kdgQVmgSRBn0VgQKLnUJLq/W7eK3R1IOyKBEQ4/2AMfpzQBVoq/qOrzakiLNBZxBDkG3tY4ifqVAzTjrc7ab9i+zWIj2BN4s4xJj1343Z980AZ1FaGn6zPpsLRw29lKGbcTcWkcpH0LA4FQ2eoSWV41zHFbyOwIKzQJIgz6KwIFAFWirVzqEl1frdvFbo6kHZFAiIcf7AGP05qXUdXm1JEWaCziCHINvaxxE/UqBmgChRWidbnbTfsX2axEewJvFnGJMeu/G7Pvmk0/WZ9NhaOG3spQzbibi0jlI+hYHAoAz6KtWeoSWV41zHFbyOwIKzQJIgz6KwIFFzqEl1frdvFbo6kHZFAiIcf7AGP05oAq0Vf1HV5tSRFmgs4ghyDb2scRP1KgZpx1udtN+xfZrER7Am8WcYkx678bs++aAM6itDT9Zn02Fo4beylDNuJuLSOUj6FgcCobPUJLK8a5jit5HYEFZoEkQZ9FYECgCrRVq51CS6v1u3it0dSDsigREOP8AYAx+nNS6jq82pIizQWcQQ5Bt7WOIn6lQM0AUKK0Trc7ab9i+zWIj2BN4s4xJj1343Z980mn6zPpsLRw29lKGbcTcWkcpH0LA4FAGfRVqz1CSyvGuY4reR2BBWaBJEGfRWBAoudQkur9bt4rdHUg7IoERDj/YAx+nNAFWir+o6vNqSIs0FnEEOQbe1jiJ+pUDNOOtztpv2L7NYiPYE3izjEmPXfjdn3zQBnUVoafrM+mwtHDb2UoZtxNxaRykfQsDgVDZ6hJZXjXMcVvI7AgrNAkiDPorAgUAVaKtXOoSXV+t28VujqQdkUCIhx/sAY/TmpdR1ebUkRZoLOIIcg29rHET9SoGaAKFFaJ1udtN+xfZrER7Am8WcYkx678bs++aTT9Zn02Fo4beylDNuJuLSOUj6FgcCgDPoq1Z6hJZXjXMcVvI7AgrNAkiDPorAgUXOoSXV+t28VujqQdkUCIhx/sAY/TmgCrRV/UdXm1JEWaCziCHINvaxxE/UqBmnHW52037F9msRHsCbxZxiTHrvxuz75oAzqK0NP1mfTYWjht7KUM24m4tI5SPoWBwKhs9QksrxrmOK3kdgQVmgSRBn0VgQKAKtFWrnUJLq/W7eK3R1IOyKBEQ4/2AMfpzUuo6vNqSIs0FnEEOQbe1jiJ+pUDNAFCitE63O2m/Yvs1iI9gTeLOMSY9d+N2ffNJp+sz6bC0cNvZShm3E3FpHKR9CwOBQBn0Vas9QksrxrmOK3kdgQVmgSRBn0VgQKLnUJLq/W7eK3R1IOyKBEQ4/wBgDH6c0AVaKv6jq82pIizQWcQQ5Bt7WOIn6lQM0463O2m/Yvs1iI9gTeLOMSY9d+N2ffNAGdRWhp+sz6bC0cNvZShm3E3FpHKR9CwOBUNnqElleNcxxW8jsCCs0CSIM+isCBQBVoq1c6hJdX63bxW6OpB2RQIiHH+wBj9Oal1HV5tSRFmgs4ghyDb2scRP1KgZoAoUVonW52037F9msRHsCbxZxiTHrvxuz75pNP1mfTYWjht7KUM24m4tI5SPoWBwKAM+irVnqElleNcxxW8jsCCs0CSIM+isCBRc6hJdX63bxW6OpB2RQIiHH+wBj9OaAKtFX9R1ebUkRZoLOIIcg29rHET9SoGacdbnbTfsX2axEewJvFnGJMeu/G7PvmgDOorQ0/WZ9NhaOG3spQzbibi0jlI+hYHAqGz1CSyvGuY4reR2BBWaBJEGfRWBAoAq0VaudQkur9bt4rdHUg7IoERDj/YAx+nNS6jq82pIizQWcQQ5Bt7WOIn6lQM0AUKK0Trc7ab9i+zWIj2BN4s4xJj1343Z980mn6zPpsLRw29lKGbcTcWkcpH0LA4FAGfRVqz1CSyvGuY4reR2BBWaBJEGfRWBAoudQkur9bt4rdHUg7IoERDj/YAx+nNAFWir+o6vNqSIs0FnEEOQbe1jiJ+pUDNOOtztpv2L7NYiPYE3izjEmPXfjdn3zQBnUVoafrM+mwtHDb2UoZtxNxaRykfQsDgVDZ6hJZXjXMcVvI7AgrNAkiDPorAgUAVaKtXOoSXV+t28VujqQdkUCIhx/sAY/TmpdR1ebUkRZoLOIIcg29rHET9SoGaAKFFaJ1udtN+xfZrER7Am8WcYkx678bs++aTT9Zn02Fo4beylDNuJuLSOUj6FgcCgDPoq1Z6hJZXjXMcVvI7AgrNAkiDPorAgUXOoSXV+t28VujqQdkUCIhx/sAY/TmgCrRV/UdXm1JEWaCziCHINvaxxE/UqBmnHW52037F9msRHsCbxZxiTHrvxuz75oAzqK0NP1mfTYWjht7KUM24m4tI5SPoWBwKhs9QksrxrmOK3kdgQVmgSRBn0VgQKAKtFWrnUJLq/W7eK3R1IOyKBEQ4/2AMfpzUuo6vNqSIs0FnEEOQbe1jiJ+pUDNAFCitE63O2m/Yvs1iI9gTeLOMSY9d+N2ffNJp+sz6bC0cNvZShm3E3FpHKR9CwOBQBn0Vas9QksrxrmOK3kdgQVmgSRBn0VgQKLnUJLq/W7eK3R1IOyKBEQ4/2AMfpzQBVoq/qOrzakiLNBZxBDkG3tY4ifqVAzTjrc7ab9i+zWIj2BN4s4xJj1343Z980AZ1FaGn6zPpsLRw29lKGbcTcWkcpH0LA4FQ2eoSWV41zHFbyOwIKzQJIgz6KwIFAFWirVzqEl1frdvFbo6kHZFAiIcf7AGP05qXUdXm1JEWaCziCHINvaxxE/UqBmgChRWidbnbTfsX2axEewJvFnGJMeu/G7Pvmk0/WZ9NhaOG3spQzbibi0jlI+hYHAoAz6KtWeoSWV41zHFbyOwIKzQJIgz6KwIFFzqEl1frdvFbo6kHZFAiIcf7AGP05oAq0Vf1HV5tSRFmgs4ghyDb2scRP1KgZpx1udtN+xfZrER7Am8WcYkx678bs++aAM6itDT9Zn02Fo4beylDNuJuLSOUj6FgcCobPUJLK8a5jit5HYEFZoEkQZ9FYECgCrRVi+vXv7ozyxwRsQBtghWNeP9lQBVegAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKK3fC+mwahJfNLatfzW9v5kNkrlTMdwB6cnAJOByaAMKitXUZNOi1KCS302SAKB9psZ2baHB5AbO7BGOvIq94pTTbdLGLT9KhtHntYrl5EmkY5ZSSuGYjH60dA6nOUV6RJ4Q0ddWllFt/oX2Zo0h81+LgAt1zn7i7sZ71yM2n2yeH9FuVixNdTzJM24/MFZQBjPHU9Ka1dhXsrmLRXU3OjWEeseKIEgxHYRO1su9v3ZEiqO/PBPXNcxHG0sqRxjLuwVR6k0lra3Ub0uNorqPGWjafpbWkmlR7YgXtp/nLbpoyAx5PGcjgU95tF/4RVdSHh21ErXbW+37TPgAIGz9/rk0dLh1scpRXSWVtpdjoen3eoaeb6S/uJE5maMRIhUcbepO7vkcdKsRaRp+mXfiQXVmuoLphVYFlkdc5lC5OwjsaAOTorsItE0258QeHD9ia3g1TmayaRjtw5XIOd2Gxkc/jWfr1s9rafvPCraSDJhbhvP568fOxFAHP0UV0VrBpeneH7G+1DTzfyXs0ikGZk8pE2jjb1JyevHHSgDnaK3NITS28WJaG0+32NxcrDF57ujKrOAG+UjnH4VbtbTTdR8fwaeunR29mJ2heJJZDvwW5JLEg9Oh7UdvMO/kcxRWvBY27+E7+9aPNxDdxRo+48KyuSMdOwrfu9L0aXVbnRoNMFvLHY+fHdJPIWLiESEMrEjB5HGKO/wDXS4dbf1vY4miuk8MrplxZ6it/pMN1Ja2j3KyNNKpJBUBSFYDHJ96g0i2sZ4tW1O7sxJBZorx2iyMqku4UAtndgZ9cn1o6gYVFdJp1vo2reLNJhtrV47e5ZVubVnYhWyQQrZ3YIweuaj162e1tP3nhVtJBkwtw3n89ePnYigDn6KKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAK0tHXT3eZb+7lsZtoNvcopZUYHncF55HcdKzaKAOh1++tNVutNt/7Q+0NBD5U+oyxsN/zEg4xuIUHGSMmneKX024Sxl0/VYbt4LWK2eNIZFOVUgtllAx+tc5RR/ncDrz4gtD46mvPtj/ANnMjlThtu825TO3Gc54ziqljc6Xe6Hp9pqGoGxksLh5OYWkEqNtPG3oQV78c9a5uimtHcVjqrbV7C/1rxFNd3QsYtTicRPJGz4JkVgCFBPQVV02PSdJ8S6fcS6rDeW0T+dI0UMgwV5VcMoJyQBXP0Ulpa3Qb1vfqdNqGv2WreG7u3e1hsbkXi3USxGR/NLAiTJYnH8J7Dis9r63PgyOxEn+ki/aYptP3DGBnPTqKyaKOlv6/rQOp0llc6XfaHp9pqGoGxksLiR+YWkEqOVPG3oRt74HPWrEfilY7vxJf2dxJZ3N8Va125Df60EjI6fLXJ0UAdedesbjxtpGuz3bDd5b3qsrnyXXg445BxkAZ61j6pbWiQNJBr0N+2/iFY5lP1y6gVkUUAFdVo+rWo0mwibWJNIubCaU70jdvNjfaSAV6H5cYPHvXK0U07COlg1Gx1Hx7JrF3eLY263YuV82N2LAODtwgPOPwpqX9jpPjmHU4Ltb62+0GZ2ijdSoZjkYcDkA/SucopLS3kN638zob6fTLHw7Pp2n3/2+S6ukmLrC0YjVVYAHd1J3duOK1bvVNGi1W51mDU1uJZLHyI7VIJAwcwiMlmYAYHJ4zXE0Ud/66WH1v/W9zpPDLaZb2eotf6tDayXVo9ssbQysQSVIYlVIxwfeoNIubCCLVtMu7wRwXiKkd2sbMoKOGBK43YOPTI9KwqKOtxHSadcaNpPizSZra6eS3tmVrm6ZGAZsnJVcZwBgdM1S1S2tEgaSDXob9t/EKxzKfrl1ArIooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKALtlo2p6lG0mn6fdXSKdrNDCzgH0yBUVrp97e3TW1naTzzqCWiijLMMdeBzUSTSxgiOR0B6hWIpFkdG3I7K3qDg0ATT6fe2t4LS5tJ4bliAIZIyrnPTg881Je6RqWmojajYXVqrnCmeFkDH2yKqtI7PvZ2Zv7xPNK80kuPMkZ8dNzE0AWzomqrY/bW027Fpt3+eYG2bfXdjGKSy0bU9SjaTT9PurpFO1mhhZwD6ZAqr58vl7PMfZjG3ccUJNLGCI5HQHqFYigCW10+9vbpraztJ551BLRRRlmGOvA5on0+9tbwWlzaTw3LEAQyRlXOenB55qFZHRtyOyt6g4NDSOz72dmb+8TzQBavdI1LTURtRsLq1VzhTPCyBj7ZFOOiaqtj9tbTbsWm3f55gbZt9d2MYqo80kuPMkZ8dNzE0efL5ezzH2Yxt3HFAFqy0bU9SjaTT9PurpFO1mhhZwD6ZAqK10+9vbpraztJ551BLRRRlmGOvA5qJJpYwRHI6A9QrEUiyOjbkdlb1BwaAJp9PvbW8Fpc2k8NyxAEMkZVznpweeakvdI1LTURtRsLq1VzhTPCyBj7ZFVWkdn3s7M394nmleaSXHmSM+Om5iaALZ0TVVsftrabdi027/PMDbNvruxjFJZaNqepRtJp+n3V0inazQws4B9MgVV8+Xy9nmPsxjbuOKEmljBEcjoD1CsRQBLa6fe3t01tZ2k886gloooyzDHXgc0T6fe2t4LS5tJ4bliAIZIyrnPTg881Csjo25HZW9QcGhpHZ97OzN/eJ5oAtXukalpqI2o2F1aq5wpnhZAx9sinHRNVWx+2tpt2LTbv88wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigC1ZaNqepRtJp+n3V0inazQws4B9MgVFa6fe3t01tZ2k886gloooyzDHXgc1Ek0sYIjkdAeoViKRZHRtyOyt6g4NAE0+n3treC0ubSeG5YgCGSMq5z04PPNSXukalpqI2o2F1aq5wpnhZAx9siqrSOz72dmb+8TzSvNJLjzJGfHTcxNAFs6Jqq2P21tNuxabd/nmBtm313YxikstG1PUo2k0/T7q6RTtZoYWcA+mQKq+fL5ezzH2Yxt3HFCTSxgiOR0B6hWIoAltdPvb26a2s7SeedQS0UUZZhjrwOaJ9PvbW8Fpc2k8NyxAEMkZVznpweeahWR0bcjsreoODQ0js+9nZm/vE80AWr3SNS01EbUbC6tVc4UzwsgY+2RTjomqrY/bW027Fpt3+eYG2bfXdjGKqPNJLjzJGfHTcxNHny+Xs8x9mMbdxxQBastG1PUo2k0/T7q6RTtZoYWcA+mQKitdPvb26a2s7SeedQS0UUZZhjrwOaiSaWMERyOgPUKxFIsjo25HZW9QcGgCafT721vBaXNpPDcsQBDJGVc56cHnmpL3SNS01EbUbC6tVc4UzwsgY+2RVVpHZ97OzN/eJ5pXmklx5kjPjpuYmgC2dE1VbH7a2m3YtNu/zzA2zb67sYxSWWjanqUbSafp91dIp2s0MLOAfTIFVfPl8vZ5j7MY27jihJpYwRHI6A9QrEUAS2un3t7dNbWdpPPOoJaKKMswx14HNE+n3treC0ubSeG5YgCGSMq5z04PPNQrI6NuR2VvUHBoaR2fezszf3ieaALV7pGpaaiNqNhdWqucKZ4WQMfbIpx0TVVsftrabdi027/PMDbNvruxjFVHmklx5kjPjpuYmjz5fL2eY+zGNu44oAtWWjanqUbSafp91dIp2s0MLOAfTIFRWun3t7dNbWdpPPOoJaKKMswx14HNRJNLGCI5HQHqFYikWR0bcjsreoODQBNPp97a3gtLm0nhuWIAhkjKuc9ODzzUl7pGpaaiNqNhdWqucKZ4WQMfbIqq0js+9nZm/vE80rzSS48yRnx03MTQBbOiaqtj9tbTbsWm3f55gbZt9d2MYpLLRtT1KNpNP0+6ukU7WaGFnAPpkCqvny+Xs8x9mMbdxxQk0sYIjkdAeoViKAJbXT729umtrO0nnnUEtFFGWYY68DmifT721vBaXNpPDcsQBDJGVc56cHnmoVkdG3I7K3qDg0NI7PvZ2Zv7xPNAFq90jUtNRG1GwurVXOFM8LIGPtkU46Jqq2P21tNuxabd/nmBtm313YxiqjzSS48yRnx03MTR58vl7PMfZjG3ccUAWrLRtT1KNpNP0+6ukU7WaGFnAPpkCorXT729umtrO0nnnUEtFFGWYY68DmokmljBEcjoD1CsRSLI6NuR2VvUHBoAmn0+9tbwWlzaTw3LEAQyRlXOenB55qS90jUtNRG1GwurVXOFM8LIGPtkVVaR2fezszf3ieaV5pJceZIz46bmJoAtnRNVWx+2tpt2LTbv8APMDbNvruxjFJZaNqepRtJp+n3V0inazQws4B9MgVV8+Xy9nmPsxjbuOKEmljBEcjoD1CsRQBLa6fe3t01tZ2k886gloooyzDHXgc0T6fe2t4LS5tJ4bliAIZIyrnPTg881Csjo25HZW9QcGhpHZ97OzN/eJ5oAtXukalpqI2o2F1aq5wpnhZAx9sinHRNVWx+2tpt2LTbv8APMDbNvruxjFVHmklx5kjPjpuYmjz5fL2eY+zGNu44oAtWWjanqUbSafp91dIp2s0MLOAfTIFRWun3t7dNbWdpPPOoJaKKMswx14HNRJNLGCI5HQHqFYikWR0bcjsreoODQBNPp97a3gtLm0nhuWIAhkjKuc9ODzzUl7pGpaaiNqNhdWqucKZ4WQMfbIqq0js+9nZm/vE80rzSS48yRnx03MTQBbOiaqtj9tbTbsWm3f55gbZt9d2MYpLLRtT1KNpNP0+6ukU7WaGFnAPpkCqvny+Xs8x9mMbdxxQk0sYIjkdAeoViKAJbXT729umtrO0nnnUEtFFGWYY68DmifT721vBaXNpPDcsQBDJGVc56cHnmoVkdG3I7K3qDg0NI7PvZ2Zv7xPNAFq90jUtNRG1GwurVXOFM8LIGPtkU46Jqq2P21tNuxabd/nmBtm313YxiqjzSS48yRnx03MTR58vl7PMfZjG3ccUAWrLRtT1KNpNP0+6ukU7WaGFnAPpkCorXT729umtrO0nnnUEtFFGWYY68DmokmljBEcjoD1CsRSLI6NuR2VvUHBoAmn0+9tbwWlzaTw3LEAQyRlXOenB55qS90jUtNRG1GwurVXOFM8LIGPtkVVaR2fezszf3ieaV5pJceZIz46bmJoAtnRNVWx+2tpt2LTbv88wNs2+u7GMUllo2p6lG0mn6fdXSKdrNDCzgH0yBVXz5fL2eY+zGNu44oSaWMERyOgPUKxFAEtrp97e3TW1naTzzqCWiijLMMdeBzRPp97a3gtLm0nhuWIAhkjKuc9ODzzUKyOjbkdlb1BwaGkdn3s7M394nmgC1e6RqWmojajYXVqrnCmeFkDH2yKcdE1VbH7a2m3YtNu/zzA2zb67sYxVR5pJceZIz46bmJo8+Xy9nmPsxjbuOKALVlo2p6lG0mn6fdXSKdrNDCzgH0yBUVrp97e3TW1naTzzqCWiijLMMdeBzUSTSxgiOR0B6hWIpFkdG3I7K3qDg0ATT6fe2t4LS5tJ4bliAIZIyrnPTg881Je6RqWmojajYXVqrnCmeFkDH2yKqtI7PvZ2Zv7xPNK80kuPMkZ8dNzE0AWzomqrY/bW027Fpt3+eYG2bfXdjGKSy0bU9SjaTT9PurpFO1mhhZwD6ZAqr58vl7PMfZjG3ccUJNLGCI5HQHqFYigCW10+9vbpraztJ551BLRRRlmGOvA5on0+9tbwWlzaTw3LEAQyRlXOenB55qFZHRtyOyt6g4NDSOz72dmb+8TzQBavdI1LTURtRsLq1VzhTPCyBj7ZFOOiaqtj9tbTbsWm3f55gbZt9d2MYqo80kuPMkZ8dNzE0efL5ezzH2Yxt3HFAFqy0bU9SjaTT9PurpFO1mhhZwD6ZAqK10+9vbpraztJ551BLRRRlmGOvA5qJJpYwRHI6A9QrEUiyOjbkdlb1BwaAJp9PvbW8Fpc2k8NyxAEMkZVznpweeakvdI1LTURtRsLq1VzhTPCyBj7ZFVWkdn3s7M394nmleaSXHmSM+Om5iaALZ0TVVsftrabdi027/PMDbNvruxjFJZaNqepRtJp+n3V0inazQws4B9MgVV8+Xy9nmPsxjbuOKEmljBEcjoD1CsRQBLa6fe3t01tZ2k886gloooyzDHXgc0T6fe2t4LS5tJ4bliAIZIyrnPTg881Csjo25HZW9QcGhpHZ97OzN/eJ5oAtXukalpqI2o2F1aq5wpnhZAx9sinHRNVWx+2tpt2LTbv88wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigC1ZaNqepRtJp+n3V0inazQws4B9MgVFa6fe3t01tZ2k886gloooyzDHXgc1Ek0sYIjkdAeoViKRZHRtyOyt6g4NAEl3ZXVhcGC+t5baYAExzIVYA+xqGld2kbc7Fj6k5pKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAoq1qWm3ej6jLY6jF5NzFjem4NjIBHIJHQiqtABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFdG9hoI8JLqaw6j9oaY2wU3EewOEDbsbM7cnpnPvXOV1cmnY8ApB9v04zLdtdGIXsZfYYgOmc7sjp1ofwv8ArqC3Rk2PhnVtStYriztQ8UrMqMZUXcw6jkjnnp37VXs9Gv769ltLa2YzQgmVXYIIwDg7ixAHPrWnNdRf8IzoMSzp5kN1O0iBxlASmCR26GtFrzf4111rK701obl5BsvH/c3K7wcbgQB0yDkdOtPr94dP68znLrRtQs7+Kyntm8+YAxKhD+Zk4G0qSDz6U/UtB1LSY0kv7by43YoHWRXAYfwkqTg+x5roBcaRpHjLRrqJoI0RQ12ltMZoYnJYfK2ScYIJwTiotenhtdAks7ePSIlnuFkKWN1JOzbQcMSWIUc9ODzU9A6mW/hTWktDctZHyxEJuJELFCM7goOSMHsOO9O0TQjqFrdXlxFJJbQwSMPs88SuGUZyUZslfXA+lWNe1V4NctbrTLpS8dhDHvjIYD90FZe47kEVN4SsQBd3U19YQJNZTwIs95HG25lIGVJyBnvT728wXS/kYWnaXearcNDYQ+Y6KXYlgqqo7liQAPqafdaNqFlfxWc9s3nzAGJUIfzATgbSpIPPpWnoiT6dql5aC70pi8Ox47mYNBcDIO3eDgEcHOR0rQ+0aRpHjHR7mFoIkRQbtbaYzRQuSw+VsnIwQSATijsLozn9R0DUtJhWW+ttkbNs3rIrgN/dJUnB9jzVm40I2fhcahcxSebJOqxyRzxPFtKk4YKxYNx3o1DTv7N0uRW1q3nMs4ItbSbzFcAH94xBwMZwARnk9K1IdIP/AAhctkdS0oTyXkc6odQi+4EYH+Lrkjil0fy/Qrqjkav6PpcuragkEShlBBkHnRxsVyAdpcgE88CqFaeg2TXepxOLi1gWCRHY3NwkWRu7biM/hVx3JloguINOsfEN1b3kF6bWGR4xGJUWUEHHLYZfril8Sadb6VrklrZGUwCON185gW+ZFbkgAd/SrHi218rxBeXSXVpcRXVxLJGba4SX5S2RnaTjr3qx4ot0vpv7XtLyzkgaCAeWLhfNBEaqQY87uCD2rNfCmyn8TRzdatj4Z1bUrWK4s7UPFKzKjGVF3MOo5I556d+1ZVdBNdRf8IzoMSzp5kN1O0iBxlASmCR26GrSu7EvQzLTR7++vpLS2tmaeEEyqxCeXg4O4nAHPrUjeH9UXVU01rQ/anQuib1w64JyGzgjAPQ10Vxc2l7rXiqzjvbaM375t5nkAifbKGI39Bkd+lOgvLO11vRbZ723k+w6fNFNOkgMYdlkIUN0P3gPqalP3U/66lW1aOevvDmq6batc3lpshVlUuJFYfMMqeCeD69KG8N6smm/bms2EHl+b99dwT+9szu2++MVtXt7av4bu4luYWkaxsVVBICSyk7hj1Hf0rUvdVsmabVbNdIHmWXl+bJcyeeSYghTyg2M9vu475pvS/kJatHntW9O0q81adobCHzXRC7ksFVVHcsSAB9TVSt/w60M2maxpz3UNtNdwx+S87hEJVwxUseBkevpQBHq/h+TT/7Kgijme7vIdzxZDfP5jKAuOxAHr1qtf6Df6QI5dTtikLPtLRyI/I6rlSQGx2NdIL+y0vXfCzTXsFxHZ2+yeSF96ofMf054yPw5FVdenhtdAks7ePSIlnuFkKWN1JOzbQcMSWIUc9ODzRtr5v8AMF28v0M7WdP0yLRdP1HSlu0W6klR0uZVfGzbjBVV/vU61sNKvfDV/cxJeJfWUSOzNKhictIF4XbkcH1qeOBNX8I2Ftb3lnFPZzztJHc3CxEhthBG4jPQ9Kh8OtFLp+sae9xBbzXdugiaeQRoSsisRuPA4B60eQLo/wCtzN0e0iv9bsrO4ZliuLhInKHBAZgDjP1pJrLOsSWVqQ379oozI4XPOBknAH14qK7tms7p4HkhkZOrQyCRDxnhhwaS1t2u7pIEeKNnOA0sgRR9WPAo3sGxo69pK6Q1lF5UyTS24kl8yWORWYkjKFCRt4781LJ4O16IMXsD8oYnEqH7oyRw3XHOOpHIq/4msB/ZumSx3+nzfY7JIZUhvY3bdvY8KDk/eHStx9UsD4haT7dbeX/aUz7vOXG02+Ac56Z4z60PZ/P8w7f10OOsfDWralaxXFnah4pWZUcyou5h1HJHPPTv2qoNMvDHeP5DAWWPtG4gGPLbeQeevHFdNBYfbvCOhD7da2nl3U7E3MojGMpkgnqR6deaGv7PVdW8TwRXUMA1I7raWdtiMVlDYJPTIB60PcFt/Xc56PRb6WS0RYkU3kZkgLzIgZQSCckgDlT1xV/xJ4VuNBuJDujktl2AP58ZckqCfkDZ655xTfEksAi0uxguIrhrK08uWSFtyby7NgHvgMORU/i2GO7vm1a1vLSa3nSIKiXCmUERgHKZ3DBB7UegL9CgfDWrrp3242beQI/NPzruCf3tmd2PfGKu6T4RutU0O6v42iBjVTApuYl35fad2WBX8cZrpLdtFs5p5baTTTC9hIkV3JfO1w5MJG1kLYU54wQPQVzPh7yrjSNZ09rm3t57qKLyjcSiNW2yAkbjwDijrYFsmZ9vomoXWoy2NvAJJ4QTJtkUogHUl87ce+cVFqGm3el3X2e/hMUm0MBkEMp6EEcEe4rY0ZIktda0ia8tYZ7iNFilaYeUxSQMRv6cjoenFReJJYVg0qxiuIrmSytfLlkhbcm4uzYDd8AjkcUdEHf+uxm6hpV7pTwrfwGEzxLNGCwO5D0PBqpVzUbD7A8Ci8trvzYVkzbybwmf4W44YelU6AOp+JX/ACULU/8Atl/6KSuWrqfiV/yULU/+2X/opK5agAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigCeS+uJrGCzkkzBbszRptHylsbuep6CoKKKACiiigAooooAKKKKACiiigDU8S61/wkPiG51T7P8AZ/P2fut+/btQL1wM9M9Ky6KKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooA/9k=)

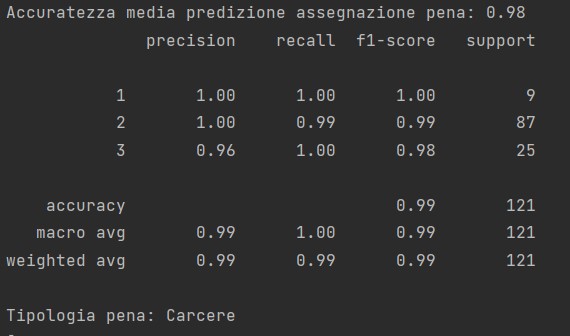
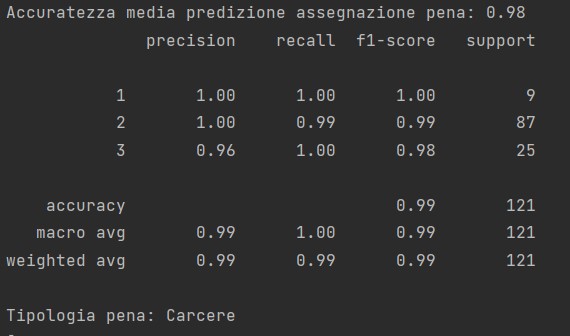
Qui è possibile osservare un esempio di interazione con il sistema, dove si chiede di inserire i dati relativi all’imputato:

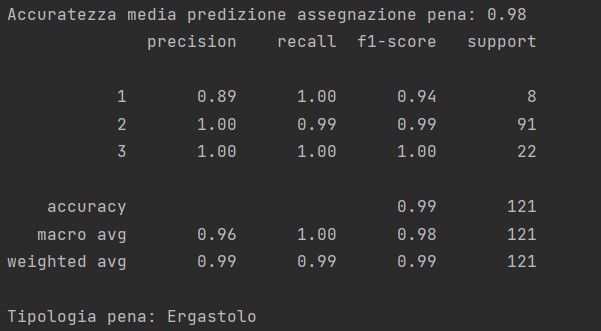
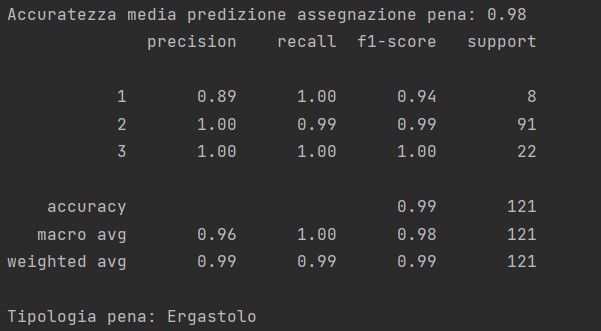


**Esempio assegnazione pena**

Qui di seguito si trova la predizione della tipologia di pena e la sua relativa accuratezza media:







**Esempio durata pena**

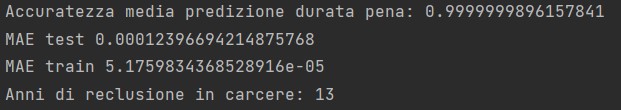
Qui di seguito si trova la predizione sul numero di anni di carcere o sui mesi di condanna agli arresti domiciliari e la sua relativa accuratezza media:

Immagine che contiene testo

Descrizione generata automaticamenteImmagine che contiene testo

Descrizione generata automaticamente

Immagine che contiene testo

Descrizione generata automaticamente

**Esempio luogo in cui scontare la pena**

Qui di seguito si trova la predizione sul luogo in cui si dovrà scontare la pena e la sua relativa accuratezza media:

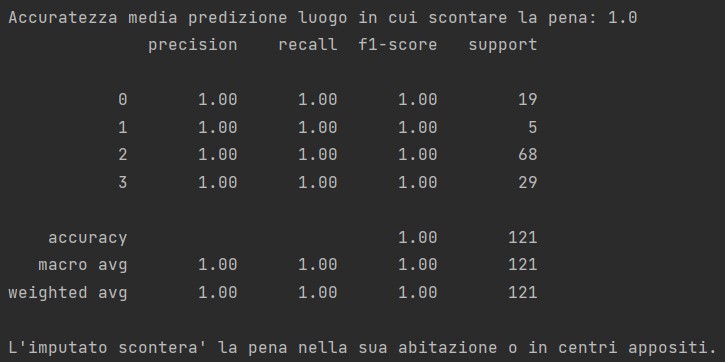
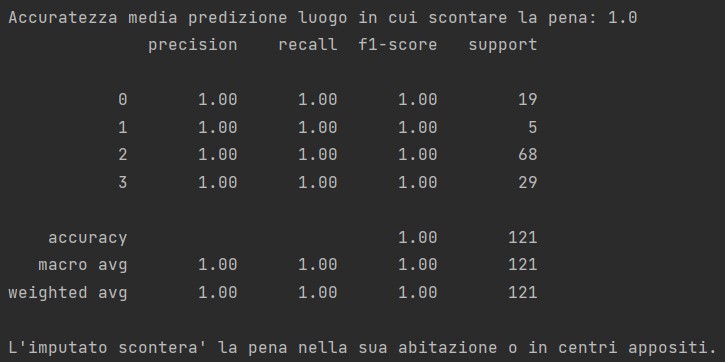
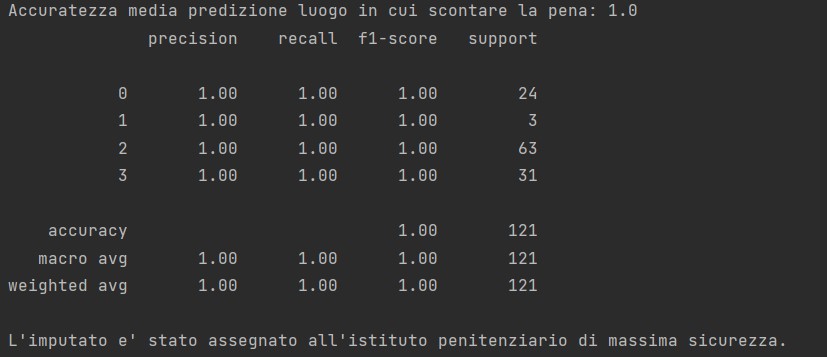
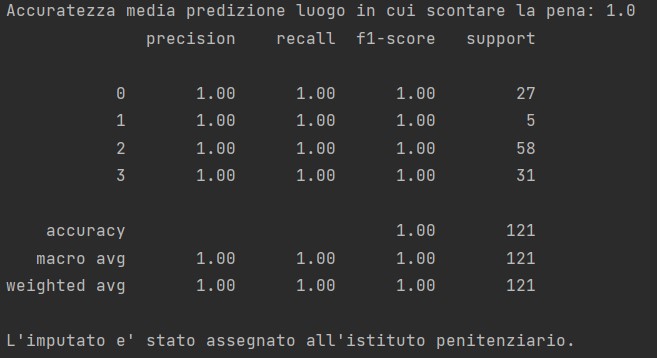
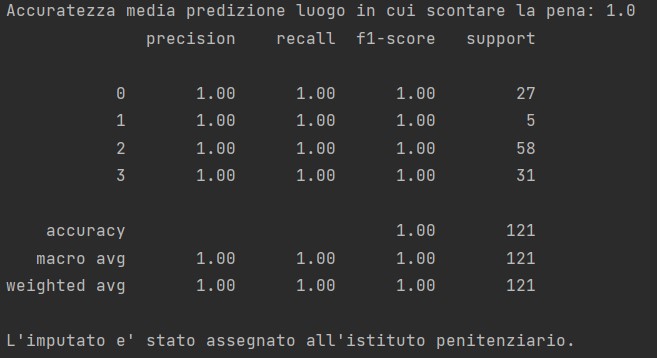
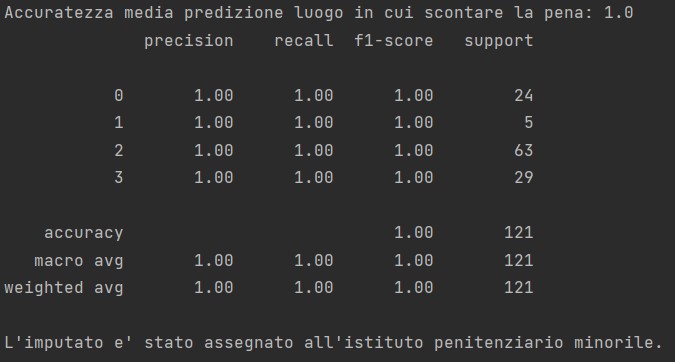
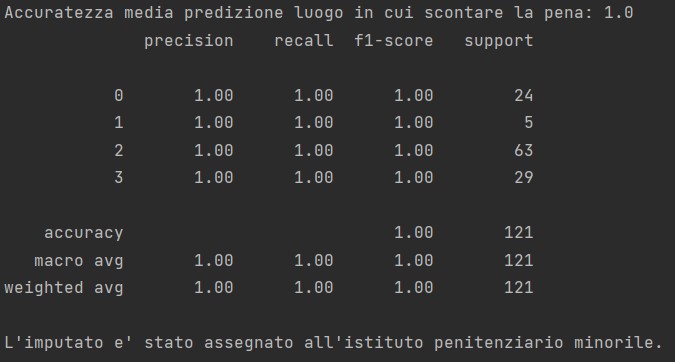
****

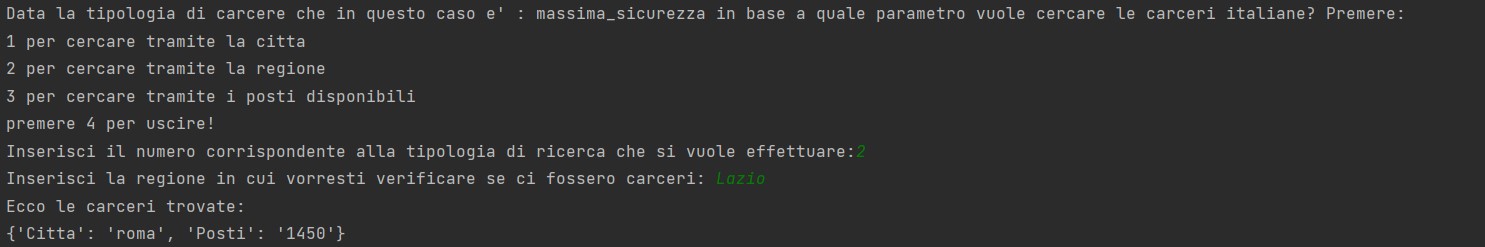
Immagine che contiene tavolo

Descrizione generata automaticamente





Una volta individuato il luogo in cui si dovrà scontare la pena, nel caso in cui dovesse essere un penitenziario, sarà possibile effettuare una ricerca sui penitenziari italiani, in base a città, regione o numero posti.



Infine, qualora si dovesse premere 4 dopo questa schermata, o qualora la pena dovesse essere “arresti domiciliari”, verrà visualizzato a linea di comando il seguente messaggio, e l’applicazione verrà chiusa in seguito:

![Immagine che contiene testo

Descrizione generata automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RD0RXhpZgAATU0AKgAAAAgABAE7AAIAAAAOAAAISodpAAQAAAABAAAIWJydAAEAAAAcAAAQ0OocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAE1pa2kgUml2aWVsbG8AAAWQAwACAAAAFAAAEKaQBAACAAAAFAAAELqSkQACAAAAAzY0AACSkgACAAAAAzY0AADqHAAHAAAIDAAACJoAAAAAHOoAAAAIAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAyMDIyOjAyOjEwIDE4OjAwOjUxADIwMjI6MDI6MTAgMTg6MDA6NTEAAABNAGkAawBpACAAUgBpAHYAaQBlAGwAbABvAAAA/+ELIGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDItMTBUMTg6MDA6NTEuNjQxPC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPk1pa2kgUml2aWVsbG88L3JkZjpsaT48L3JkZjpTZXE+DQoJCQk8L2RjOmNyZWF0b3I+PC9yZGY6RGVzY3JpcHRpb24+PC9yZGY6UkRGPjwveDp4bXBtZXRhPg0KICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICA8P3hwYWNrZXQgZW5kPSd3Jz8+/9sAQwAHBQUGBQQHBgUGCAcHCAoRCwoJCQoVDxAMERgVGhkYFRgXGx4nIRsdJR0XGCIuIiUoKSssKxogLzMvKjInKisq/9sAQwEHCAgKCQoUCwsUKhwYHCoqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioq/8AAEQgAhQNVAwEiAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8A8eoop0UhimSRQpKMGAZQwOPUHqKAG0Vf1HV5tSRFmgs4ghyDb2scRP1KgZpx1udtN+xfZrER7Am8WcYkx678bs++aAM6itDT9Zn02Fo4beylDNuJuLSOUj6FgcCobPUJLK8a5jit5HYEFZoEkQZ9FYECgCrRVq51CS6v1u3it0dSDsigREOP9gDH6c1LqOrzakiLNBZxBDkG3tY4ifqVAzQBQorROtztpv2L7NYiPYE3izjEmPXfjdn3zSafrM+mwtHDb2UoZtxNxaRykfQsDgUAZ9FWrPUJLK8a5jit5HYEFZoEkQZ9FYECi51CS6v1u3it0dSDsigREOP9gDH6c0AVaKv6jq82pIizQWcQQ5Bt7WOIn6lQM0463O2m/Yvs1iI9gTeLOMSY9d+N2ffNAGdRWhp+sz6bC0cNvZShm3E3FpHKR9CwOBUNnqElleNcxxW8jsCCs0CSIM+isCBQBVoq1c6hJdX63bxW6OpB2RQIiHH+wBj9Oal1HV5tSRFmgs4ghyDb2scRP1KgZoAoUVonW52037F9msRHsCbxZxiTHrvxuz75pNP1mfTYWjht7KUM24m4tI5SPoWBwKAM+irVnqElleNcxxW8jsCCs0CSIM+isCBRc6hJdX63bxW6OpB2RQIiHH+wBj9OaAKtFX9R1ebUkRZoLOIIcg29rHET9SoGacdbnbTfsX2axEewJvFnGJMeu/G7PvmgDOorQ0/WZ9NhaOG3spQzbibi0jlI+hYHAqGz1CSyvGuY4reR2BBWaBJEGfRWBAoAq0VaudQkur9bt4rdHUg7IoERDj/YAx+nNS6jq82pIizQWcQQ5Bt7WOIn6lQM0AUKK0Trc7ab9i+zWIj2BN4s4xJj1343Z980mn6zPpsLRw29lKGbcTcWkcpH0LA4FAGfRVqz1CSyvGuY4reR2BBWaBJEGfRWBAoudQkur9bt4rdHUg7IoERDj/YAx+nNAFWir+o6vNqSIs0FnEEOQbe1jiJ+pUDNOOtztpv2L7NYiPYE3izjEmPXfjdn3zQBnUVoafrM+mwtHDb2UoZtxNxaRykfQsDgVDZ6hJZXjXMcVvI7AgrNAkiDPorAgUAVaKtXOoSXV+t28VujqQdkUCIhx/sAY/TmpdR1ebUkRZoLOIIcg29rHET9SoGaAKFFaJ1udtN+xfZrER7Am8WcYkx678bs++aTT9Zn02Fo4beylDNuJuLSOUj6FgcCgDPoq1Z6hJZXjXMcVvI7AgrNAkiDPorAgUXOoSXV+t28VujqQdkUCIhx/sAY/TmgCrRV/UdXm1JEWaCziCHINvaxxE/UqBmnHW52037F9msRHsCbxZxiTHrvxuz75oAzqK0NP1mfTYWjht7KUM24m4tI5SPoWBwKhs9QksrxrmOK3kdgQVmgSRBn0VgQKAKtFWrnUJLq/W7eK3R1IOyKBEQ4/wBgDH6c1LqOrzakiLNBZxBDkG3tY4ifqVAzQBQorROtztpv2L7NYiPYE3izjEmPXfjdn3zSafrM+mwtHDb2UoZtxNxaRykfQsDgUAZ9FWrPUJLK8a5jit5HYEFZoEkQZ9FYECi51CS6v1u3it0dSDsigREOP9gDH6c0AVaKv6jq82pIizQWcQQ5Bt7WOIn6lQM0463O2m/Yvs1iI9gTeLOMSY9d+N2ffNAGdRWhp+sz6bC0cNvZShm3E3FpHKR9CwOBUNnqElleNcxxW8jsCCs0CSIM+isCBQBVoq1c6hJdX63bxW6OpB2RQIiHH+wBj9Oal1HV5tSRFmgs4ghyDb2scRP1KgZoAoUVonW52037F9msRHsCbxZxiTHrvxuz75pNP1mfTYWjht7KUM24m4tI5SPoWBwKAM+irVnqElleNcxxW8jsCCs0CSIM+isCBRc6hJdX63bxW6OpB2RQIiHH+wBj9OaAKtFX9R1ebUkRZoLOIIcg29rHET9SoGacdbnbTfsX2axEewJvFnGJMeu/G7PvmgDOorQ0/WZ9NhaOG3spQzbibi0jlI+hYHAqGz1CSyvGuY4reR2BBWaBJEGfRWBAoAq0VaudQkur9bt4rdHUg7IoERDj/YAx+nNS6jq82pIizQWcQQ5Bt7WOIn6lQM0AUKK0Trc7ab9i+zWIj2BN4s4xJj1343Z980mn6zPpsLRw29lKGbcTcWkcpH0LA4FAGfRVqz1CSyvGuY4reR2BBWaBJEGfRWBAoudQkur9bt4rdHUg7IoERDj/AGAMfpzQBVoq/qOrzakiLNBZxBDkG3tY4ifqVAzTjrc7ab9i+zWIj2BN4s4xJj1343Z980AZ1FaGn6zPpsLRw29lKGbcTcWkcpH0LA4FQ2eoSWV41zHFbyOwIKzQJIgz6KwIFAFWirVzqEl1frdvFbo6kHZFAiIcf7AGP05qXUdXm1JEWaCziCHINvaxxE/UqBmgChRWidbnbTfsX2axEewJvFnGJMeu/G7Pvmk0/WZ9NhaOG3spQzbibi0jlI+hYHAoAz6KtWeoSWV41zHFbyOwIKzQJIgz6KwIFFzqEl1frdvFbo6kHZFAiIcf7AGP05oAq0Vf1HV5tSRFmgs4ghyDb2scRP1KgZpx1udtN+xfZrER7Am8WcYkx678bs++aAM6itDT9Zn02Fo4beylDNuJuLSOUj6FgcCobPUJLK8a5jit5HYEFZoEkQZ9FYECgCrRVq51CS6v1u3it0dSDsigREOP9gDH6c1LqOrzakiLNBZxBDkG3tY4ifqVAzQBQorROtztpv2L7NYiPYE3izjEmPXfjdn3zSafrM+mwtHDb2UoZtxNxaRykfQsDgUAZ9FWrPUJLK8a5jit5HYEFZoEkQZ9FYECi51CS6v1u3it0dSDsigREOP9gDH6c0AVaKv6jq82pIizQWcQQ5Bt7WOIn6lQM0463O2m/Yvs1iI9gTeLOMSY9d+N2ffNAGdRWhp+sz6bC0cNvZShm3E3FpHKR9CwOBUNnqElleNcxxW8jsCCs0CSIM+isCBQBVoq1c6hJdX63bxW6OpB2RQIiHH+wBj9Oal1HV5tSRFmgs4ghyDb2scRP1KgZoAoUVonW52037F9msRHsCbxZxiTHrvxuz75pNP1mfTYWjht7KUM24m4tI5SPoWBwKAM+irVnqElleNcxxW8jsCCs0CSIM+isCBRc6hJdX63bxW6OpB2RQIiHH+wBj9OaAKtFX9R1ebUkRZoLOIIcg29rHET9SoGacdbnbTfsX2axEewJvFnGJMeu/G7PvmgDOooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAoorW8R2VvYX1tHaR+Wr2cErDcTlmQEnn3NAGTRWno8VhLDqZ1DZuSzZrbc+397uXGOeTgnineGhaS69a21/Yx3kVzKkOHkdNm5gNw2kc/Wmld2FeyuZVFdRa22mX3jxLL+zI4bON5Y2gSWQ+ZsDHJJYkHgdD2qzq/hux0zw1fTCPfci5V7eXeeLdmITjODnaxyam+lyrWdjjqK7p9J0efxCdDTRxCv2VZDexzyFoz5IfcwLFcZ9hXPzafbJ4f0W5WPE11PMkzbj8wVlA47dT0qkruxN9L/ANdzForq1ttLtPHtxpMulRXNtJfiCMPNKpiXfjgqwz1756Vla0bWbV2s9N02Kz8qZogI5JHMnzYGdzH9PWktbW6jel79DJorqPGWjafpbWkmlR7YgXtp/nLbpoyAx5PGcjgU95tF/wCEVXUh4dtRK121vt+0z4ACBs/f65NHS4dbHKUV0llbaXY6Hp93qGnm+kv7iROZmjESIVHG3qTu75HHSsnXLBdL169sY2LpbztGrN1IB4zRsBRorV8MWcGoeKNPtLyPzIJp1R0yRuHpkc1b162e1tP3nhVtJBkwtw3n89ePnYigFqc/RWm8Vh/wisUq7P7QN4yt8/zeVsUj5c9Mk84rMo62AKK3fD8FidM1e9v7FL02kUbRxvI6DLSBT90g9DRrFtY2c2maha2n+jXkAna0kkYhSGKsu4ENg7fXPNAGFRXR+KU022jsYtP0qG0ee1iuWkSaRjllJK4ZiMfrUup2+haXPJpVxYyCVLVWF8srFzK0YYfJ93bk46ZxzmjuBy9FdLb+G5b/AMO6Td6dptxcyS3EqXLwo7/KCu3OOB1PpT1s9NtfiHPpcunR3Fm999mSN5ZB5alwMghgScepNO2qXcV9L/1/Why9Faesrby67LbabYpaLHKYVjjd33kMQDliTk8Vq+M9G0/TDaPpMZWIGS2nO8tmaMgMeTxnI46VN7q5VrOxy9FdzNpOjz63No0ekCAJZib7ck0hMbeSH3MGJXGeOg61n+D9DsdUt7x9TjLGRltbQ7yu2ZlYg8HnG0cHjmmLoctRWz4c+xHWYLLUtMivBc3EcRMkkiGPLYONrD17+lXFs9P1fxnb6Vb2CWEC3LRSGGV2Z1B/2ycHA7etHbzDv5HNUV0N9Bpl/wCHbjUdPsPsElrdJCVWZpBIrhiCd3Qjb2456Vz1ABRXRWsOlab4fsb7UdPN+97NIpzMyCJE2jjb1JyevHtTdOstKLazfmKS8srFQ0EMjGMybnCruI54B7UAc/RXU/2Rp0/iDw80VsYrTVNjSWxkYhf3hRgG64OM9c81zl2ixXs8aDCrIygegBo/4P4B/X3kNFd0+k6PP4hOhpo4hX7KshvY55C0Z8kPuYFiuM+wqnpmko/hW0vLbw22s3EtxKkrKZjsC7dvEbADqaA7f15nI0VvW1lbX1rroax+y3dqgnhiDP8AugrgSJhjk8Hvk8Vag0Gzn1Lw7pzqyS3kQmupFY5IZiVAB4HyAfnQBy9FdDfQaZf+HbjUdPsPsElrdJCVWZpBIrhiCd3Qjb2456VU8R2VvYX1tHaR+Wr2cErDcTlmQEnn3NH9fhcP6/QyaK67TNJR/ClpeW3httYuJbiVJWUzHYF27eI2AHU1jWMEF14ttra6s/s8El4kclruYbAXAK5J3frmmld2FfS5lUVa1OKKDV7yK3XbFHO6ouc4UMQB+VValO6uU1Z2CiiimIKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAK6nV00fVjbXK69bwvHZwxNC9vMWDIgBGQmOo9a5aijpYOtwrV8NG0j161ub++js4raVJsvG779rA7RtB5+tZVFNOzuJq6sdPbXem6f47W/Gox3Fo7yyNKkUg2bg2FIKg55HQY5qjbamh8L6laXVw7XEr24gV9zfIm/IB6ADI4rGoqUrKxTd3c6TxN4nu7+8e3sdTuG04wxIIg7KhxGoYbTjuDRY3Ol3uh6faahqBsZLC4eTmFpBKjbTxt6EFe/HPWuboqk7O5NtLG2dXgufHi6vJmK3bUBOcjJVN+eQPb0pdNvbBPHAv7yXFml09wG2k7sEsoxjPJwPxrDopLS1ug3re/U6bUNfstW8N3du9rDY3IvFuoliMj+aWBEmSxOP4T2HFZ7X1ufBkdiJP8ASRftMU2n7hjAznp1FZNFHS39f1oHU6SyudLvtD0+01DUDYyWFxI/MLSCVHKnjb0I298DnrWTrl+uqa9e30alEuJ2kVW6gE8ZqjRRuBq+GLyDT/FGn3d5J5cEM6tI+0naPXA5p2qW1okDSQa9Dftv4hWOZT9cuoFZFFABRRRQBu+H57EaZq9lf3yWRu4o1jkeN3GVkDH7oJ6CjWLmxvJtM0+1u/8ARrOAQNdyRsASWLM20AtgbvTPFYVFAHR+KX025jsZdP1WG7eC1itmjSGRTlVILZZQMfrU2p3GhapPJqtxeyGV7VVFisTBxKsYUfP93bkZ65x2rlqKO4G62qwr4f0e2iuGWW3uJnmVQw2qxTB9D0PSra3mm3XxDn1SXUY7ezS++0pI8Uh8xQ4OAApIOPUCuXop3s0+39foK2lv66/5nSwzaTaeOor59QjubITtdF0ikGCCWVMFQc5A7Y5pdQ1+y1bw3d272sNjci8W6iWIyP5pYESZLE4/hPYcVzNFTbSxV9bncX3iyHUZNR0yfUpRplxZxrA+H2xSoi8bcZwWBB47g1QsPEVjo+g6bBDaQ3tzHdNdy+Y0ieS4ICY2kA8DPcc1y1FVfW4uljelvNPi8fLfWs2bAX6ziTYw2pvDHjGeOR07Uyw1aCx8bLqh3SW63bSHaOShJ5APsaxKKS0t5A9b+Z0N9Ppth4duNO0+/wDt8l1dJMXWFoxGqBgAd3Und24461z1FFAHRWs2lal4fsrHUdQNg9lNIxzCziVH2njb0IwevHvTdOvdKDazYGWSzsr5QsE0imQx7XDLuA55A7Vz9FAHU/2vp0HiDw8sVyZbTS9iyXJjYBv3hdiF64GcdM8VnatZaann3Nnrdvdu0hYQpBKrEE+rKBx9ax6KP6+8DpPE3ie7v7x7ex1O4bTjDEgiDsqHEahhtOO4NOtprC78KWVlJrUenXFvcTO6vFKdwYLjlFI/hNczRQHY29Du7TTPExFzdiWxkWSCadUbDI6lS2CN3fPTPFWn1+1i+IEeqR7pLG3lVI9owTEq7AQD7DOK5qijsB0N9Ppth4duNO0+/wDt8l1dJMXWFoxGqBgAd3Und24461Y1dNH1Y21yuvW8Lx2cMTQvbzFgyIARkJjqPWuWoo/r8LB1/r1OmtprC78KWVlJrUenXFvcTO6vFKdwYLjlFI/hNY9uIrfXotuoqscc6kXqxMwGDnftIyfXBFUaKfW4dLE16VN9OUn+0KZGIm27fM5+9jtnrioaKKlaKwPUKKKKYBRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFOjjeWRY4lZ3chVVRksT0AFNoBIIIOCOhoAuXukalpqI2o2F1aq5wpnhZAx9sinHRNVWx+2tpt2LTbv88wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigC1ZaNqepRtJp+n3V0inazQws4B9MgVFa6fe3t01tZ2k886gloooyzDHXgc1Ek0sYIjkdAeoViKRZHRtyOyt6g4NAE0+n3treC0ubSeG5YgCGSMq5z04PPNSXukalpqI2o2F1aq5wpnhZAx9siqrSOz72dmb+8TzSvNJLjzJGfHTcxNAFs6Jqq2P21tNuxabd/nmBtm313YxikstG1PUo2k0/T7q6RTtZoYWcA+mQKq+fL5ezzH2Yxt3HFCTSxgiOR0B6hWIoAltdPvb26a2s7SeedQS0UUZZhjrwOaJ9PvbW8Fpc2k8NyxAEMkZVznpweeahWR0bcjsreoODQ0js+9nZm/vE80AWr3SNS01EbUbC6tVc4UzwsgY+2RTjomqrY/bW027Fpt3+eYG2bfXdjGKqPNJLjzJGfHTcxNHny+Xs8x9mMbdxxQBastG1PUo2k0/T7q6RTtZoYWcA+mQKitdPvb26a2s7SeedQS0UUZZhjrwOaiSaWMERyOgPUKxFIsjo25HZW9QcGgCafT721vBaXNpPDcsQBDJGVc56cHnmpL3SNS01EbUbC6tVc4UzwsgY+2RVVpHZ97OzN/eJ5pXmklx5kjPjpuYmgC2dE1VbH7a2m3YtNu/wA8wNs2+u7GMUllo2p6lG0mn6fdXSKdrNDCzgH0yBVXz5fL2eY+zGNu44oSaWMERyOgPUKxFAEtrp97e3TW1naTzzqCWiijLMMdeBzRPp97a3gtLm0nhuWIAhkjKuc9ODzzUKyOjbkdlb1BwaGkdn3s7M394nmgC1e6RqWmojajYXVqrnCmeFkDH2yKcdE1VbH7a2m3YtNu/wA8wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigC1ZaNqepRtJp+n3V0inazQws4B9MgVFa6fe3t01tZ2k886gloooyzDHXgc1Ek0sYIjkdAeoViKRZHRtyOyt6g4NAE0+n3treC0ubSeG5YgCGSMq5z04PPNSXukalpqI2o2F1aq5wpnhZAx9siqrSOz72dmb+8TzSvNJLjzJGfHTcxNAFs6Jqq2P21tNuxabd/nmBtm313YxikstG1PUo2k0/T7q6RTtZoYWcA+mQKq+fL5ezzH2Yxt3HFCTSxgiOR0B6hWIoAltdPvb26a2s7SeedQS0UUZZhjrwOaJ9PvbW8Fpc2k8NyxAEMkZVznpweeahWR0bcjsreoODQ0js+9nZm/vE80AWr3SNS01EbUbC6tVc4UzwsgY+2RTjomqrY/bW027Fpt3+eYG2bfXdjGKqPNJLjzJGfHTcxNHny+Xs8x9mMbdxxQBastG1PUo2k0/T7q6RTtZoYWcA+mQKitdPvb26a2s7SeedQS0UUZZhjrwOaiSaWMERyOgPUKxFIsjo25HZW9QcGgCafT721vBaXNpPDcsQBDJGVc56cHnmpL3SNS01EbUbC6tVc4UzwsgY+2RVVpHZ97OzN/eJ5pXmklx5kjPjpuYmgC2dE1VbH7a2m3YtNu/zzA2zb67sYxSWWjanqUbSafp91dIp2s0MLOAfTIFVfPl8vZ5j7MY27jihJpYwRHI6A9QrEUAS2un3t7dNbWdpPPOoJaKKMswx14HNE+n3treC0ubSeG5YgCGSMq5z04PPNQrI6NuR2VvUHBoaR2fezszf3ieaALV7pGpaaiNqNhdWqucKZ4WQMfbIpx0TVVsftrabdi027/PMDbNvruxjFVHmklx5kjPjpuYmjz5fL2eY+zGNu44oAtWWjanqUbSafp91dIp2s0MLOAfTIFRWun3t7dNbWdpPPOoJaKKMswx14HNRJNLGCI5HQHqFYikWR0bcjsreoODQBNPp97a3gtLm0nhuWIAhkjKuc9ODzzUl7pGpaaiNqNhdWqucKZ4WQMfbIqq0js+9nZm/vE80rzSS48yRnx03MTQBbOiaqtj9tbTbsWm3f55gbZt9d2MYpLLRtT1KNpNP0+6ukU7WaGFnAPpkCqvny+Xs8x9mMbdxxQk0sYIjkdAeoViKAJbXT729umtrO0nnnUEtFFGWYY68DmifT721vBaXNpPDcsQBDJGVc56cHnmoVkdG3I7K3qDg0NI7PvZ2Zv7xPNAFq90jUtNRG1GwurVXOFM8LIGPtkU46Jqq2P21tNuxabd/nmBtm313YxiqjzSS48yRnx03MTR58vl7PMfZjG3ccUAWrLRtT1KNpNP0+6ukU7WaGFnAPpkCorXT729umtrO0nnnUEtFFGWYY68DmokmljBEcjoD1CsRSLI6NuR2VvUHBoAmn0+9tbwWlzaTw3LEAQyRlXOenB55qS90jUtNRG1GwurVXOFM8LIGPtkVVaR2fezszf3ieaV5pJceZIz46bmJoAtnRNVWx+2tpt2LTbv88wNs2+u7GMUllo2p6lG0mn6fdXSKdrNDCzgH0yBVXz5fL2eY+zGNu44oSaWMERyOgPUKxFAEtrp97e3TW1naTzzqCWiijLMMdeBzRPp97a3gtLm0nhuWIAhkjKuc9ODzzUKyOjbkdlb1BwaGkdn3s7M394nmgC1e6RqWmojajYXVqrnCmeFkDH2yKcdE1VbH7a2m3YtNu/zzA2zb67sYxVR5pJceZIz46bmJo8+Xy9nmPsxjbuOKALVlo2p6lG0mn6fdXSKdrNDCzgH0yBUVrp97e3TW1naTzzqCWiijLMMdeBzUSTSxgiOR0B6hWIpFkdG3I7K3qDg0ATT6fe2t4LS5tJ4bliAIZIyrnPTg881Je6RqWmojajYXVqrnCmeFkDH2yKqtI7PvZ2Zv7xPNK80kuPMkZ8dNzE0AWzomqrY/bW027Fpt3+eYG2bfXdjGKSy0bU9SjaTT9PurpFO1mhhZwD6ZAqr58vl7PMfZjG3ccUJNLGCI5HQHqFYigCW10+9vbpraztJ551BLRRRlmGOvA5on0+9tbwWlzaTw3LEAQyRlXOenB55qFZHRtyOyt6g4NDSOz72dmb+8TzQBavdI1LTURtRsLq1VzhTPCyBj7ZFOOiaqtj9tbTbsWm3f55gbZt9d2MYqo80kuPMkZ8dNzE0efL5ezzH2Yxt3HFAFqy0bU9SjaTT9PurpFO1mhhZwD6ZAqK10+9vbpraztJ551BLRRRlmGOvA5qJJpYwRHI6A9QrEUiyOjbkdlb1BwaAJp9PvbW8Fpc2k8NyxAEMkZVznpweeakvdI1LTURtRsLq1VzhTPCyBj7ZFVWkdn3s7M394nmleaSXHmSM+Om5iaALZ0TVVsftrabdi027/PMDbNvruxjFJZaNqepRtJp+n3V0inazQws4B9MgVV8+Xy9nmPsxjbuOKEmljBEcjoD1CsRQBLa6fe3t01tZ2k886gloooyzDHXgc0T6fe2t4LS5tJ4bliAIZIyrnPTg881Csjo25HZW9QcGhpHZ97OzN/eJ5oAtXukalpqI2o2F1aq5wpnhZAx9sinHRNVWx+2tpt2LTbv88wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigC1ZaNqepRtJp+n3V0inazQws4B9MgVFa6fe3t01tZ2k886gloooyzDHXgc1Ek0sYIjkdAeoViKRZHRtyOyt6g4NAE0+n3treC0ubSeG5YgCGSMq5z04PPNSXukalpqI2o2F1aq5wpnhZAx9siqrSOz72dmb+8TzSvNJLjzJGfHTcxNAFs6Jqq2P21tNuxabd/nmBtm313YxikstG1PUo2k0/T7q6RTtZoYWcA+mQKq+fL5ezzH2Yxt3HFCTSxgiOR0B6hWIoAltdPvb26a2s7SeedQS0UUZZhjrwOaJ9PvbW8Fpc2k8NyxAEMkZVznpweeahWR0bcjsreoODQ0js+9nZm/vE80AWr3SNS01EbUbC6tVc4UzwsgY+2RTjomqrY/bW027Fpt3+eYG2bfXdjGKqPNJLjzJGfHTcxNHny+Xs8x9mMbdxxQBastG1PUo2k0/T7q6RTtZoYWcA+mQKitdPvb26a2s7SeedQS0UUZZhjrwOaiSaWMERyOgPUKxFIsjo25HZW9QcGgCafT721vBaXNpPDcsQBDJGVc56cHnmpL3SNS01EbUbC6tVc4UzwsgY+2RVVpHZ97OzN/eJ5pXmklx5kjPjpuYmgC2dE1VbH7a2m3YtNu/wA8wNs2+u7GMUllo2p6lG0mn6fdXSKdrNDCzgH0yBVXz5fL2eY+zGNu44oSaWMERyOgPUKxFAEtrp97e3TW1naTzzqCWiijLMMdeBzRPp97a3gtLm0nhuWIAhkjKuc9ODzzUKyOjbkdlb1BwaGkdn3s7M394nmgC1e6RqWmojajYXVqrnCmeFkDH2yKcdE1VbH7a2m3YtNu/wA8wNs2+u7GMVUeaSXHmSM+Om5iaPPl8vZ5j7MY27jigBlFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQB//Z)

[Torna all’inizio](#_top)

1. **Scelte Progettuali**

Nella nostra applicazione software sono stati utilizzati:

* Un **dataset**, interamente realizzata da noi, e contenente più di 1200 condannati, in cui per ogni condannato venivano collezionate le informazioni relative a ciascun imputato;
* Un **classificatore**, in grado di predire la tipologia di pena da assegnare ad un imputato, sulla base delle informazioni fornite;
* Un **albero di decisione**, in grado di attribuire a ciascun imputato la giusta tipologia di luogo in cui scontare la pena;
* Un **regressore**, utilizzando il random forest, in grado di stabilire la durata della pena assegnata all’imputato;
* La **K-Fold-Cross-Validation**, le **metriche,** il **MAE**, la **matrice di confusione** e i **diagrammi cartesiani per gli errori** utilizzati per valutare le prestazioni e la correttezza/accuratezza delle predizioni.
* Il **Prolog**, che interagendo con una **base di conoscenza**, permette di visualizzare le carceri italiane in base a dei parametri scelti.

**Dataset**

Abbiamo dotato la nostra applicazione software di un dataset interamente realizzata da noi, attraverso Microsoft Excel, salvato in formato .csv, e collezionando per ciascun imputato le seguenti informazioni in apposite colonne:

- reato, che indica la tipologia di reato commesso dall’imputato;

- nome, cognome;

- età, utile soprattutto per stabilire a quale tipologia di luogo dovesse essere assegnato l’imputato;

- precedenti\_penali, che indica il numero di precedenti penali dell’imputato, utile per stabilire la gravità della pena;

- pena, che indica la tipologia di pena assegnata all’imputato;

- tipo\_carcere, che indica la tipologia di luogo in cui l’imputato dovrà scontare la pena;

- durata, che indica il numero di mesi di condanna da scontare.

Immagine che contiene tavolo

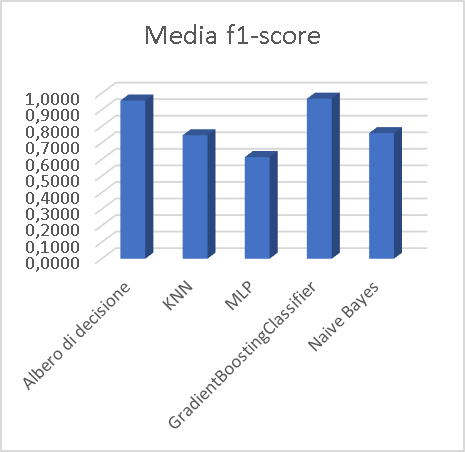
Descrizione generata automaticamente

**Classificatore**

L’applicazione utilizza il **GradientBoostingClassifier** per determinare la tipologia di pena da attribuire ad un imputato inserito in input.

La scelta del classificatore non è stata casuale ma sono state effettuate delle verifiche e delle valutazioni misurando le varie metriche e l’accuratezza di alcuni classificatori. Sono stati ottenuti i seguenti risultati:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Classificatore | Media accuratezze | Media precision | Media recall | Media f1-score |
| |  | | --- | | Albero di decisione | | 0.9780 | 0.9640 | 0.9486 | 0.9553 |
| KNN | 0.8440 | 0.7560 | 0.7900 | 0.7458 |
| MLP | 0.7560 | 0.6007 | 0.6993 | 0.6140 |
| GradientBoostingClassifier | 0.9800 | 0.9645 | 0.9618 | 0.9666 |
| Naive Bayes | 0.8040 | 0.7680 | 0.7597 | 0.7586 |



Sono state effettuate cinque esecuzioni del programma dal quale abbiamo ottenuto tutti i dati per poter poi riportare le medie nei vari grafici opportuni. (Si possono visualizzare all’interno dei file Excel caricati su GitHub) In questo caso l’albero di decisione e il GradientBoostingClassifier hanno riportato i risultati migliori ma il secondo è leggermente più accurato del primo.

Per effettuare la predizione, è stato addestrato il classificatore attraverso il dataset in formato ‘.csv’ .

Le informazioni utili alla predizione sono:

* Reato, ovvero il reato commesso dall’imputato;
* Precedenti penali, ovvero il numero di precedenti penali dell’imputato;
* Età dell’imputato.

Ad ogni campo i valori assegnati sono interi.

Per il reato sono stati associati i seguenti valori:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Omicidio** | **Furto d’auto** | **Furto in abitazione** | **Furto in banca/posta** | **Spaccio/**  **Droga** | **Complice in un reato** | **Violenza**  **/Stupro** | **Truffa** | **Usura** |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Per i precedenti penali è stato prefissato un range che va da 0 a 4.

La predizione è stata fatta all’interno del metodo di una classe, il quale restituisce un intero corrispondente alla tipologia di pena. Alle tipologie di pena sono stati assegnati i seguenti valori:

|  |  |  |
| --- | --- | --- |
| **Ergastolo** | **Carcere** | **Arresti domiciliari** |
| 1 | 2 | 3 |

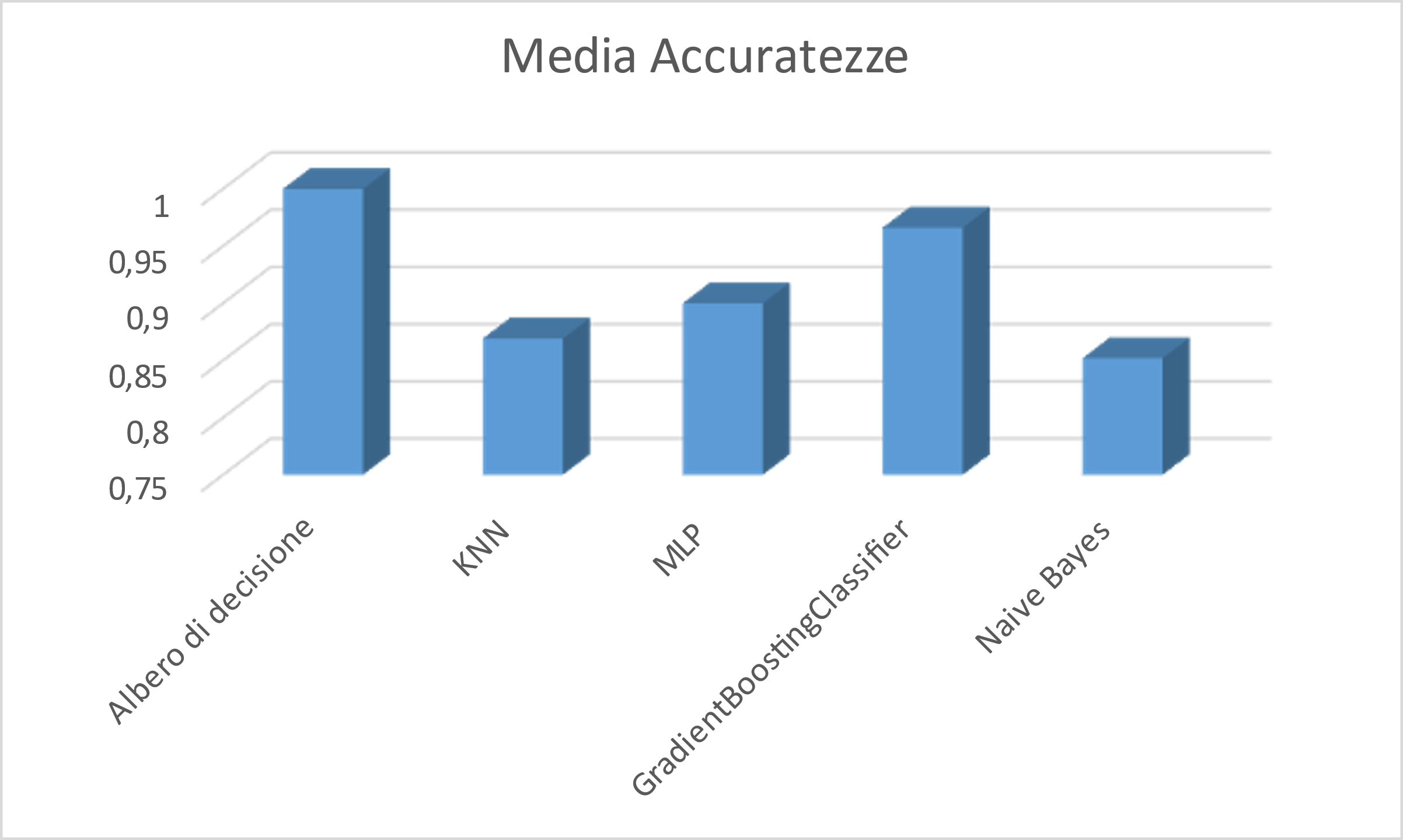
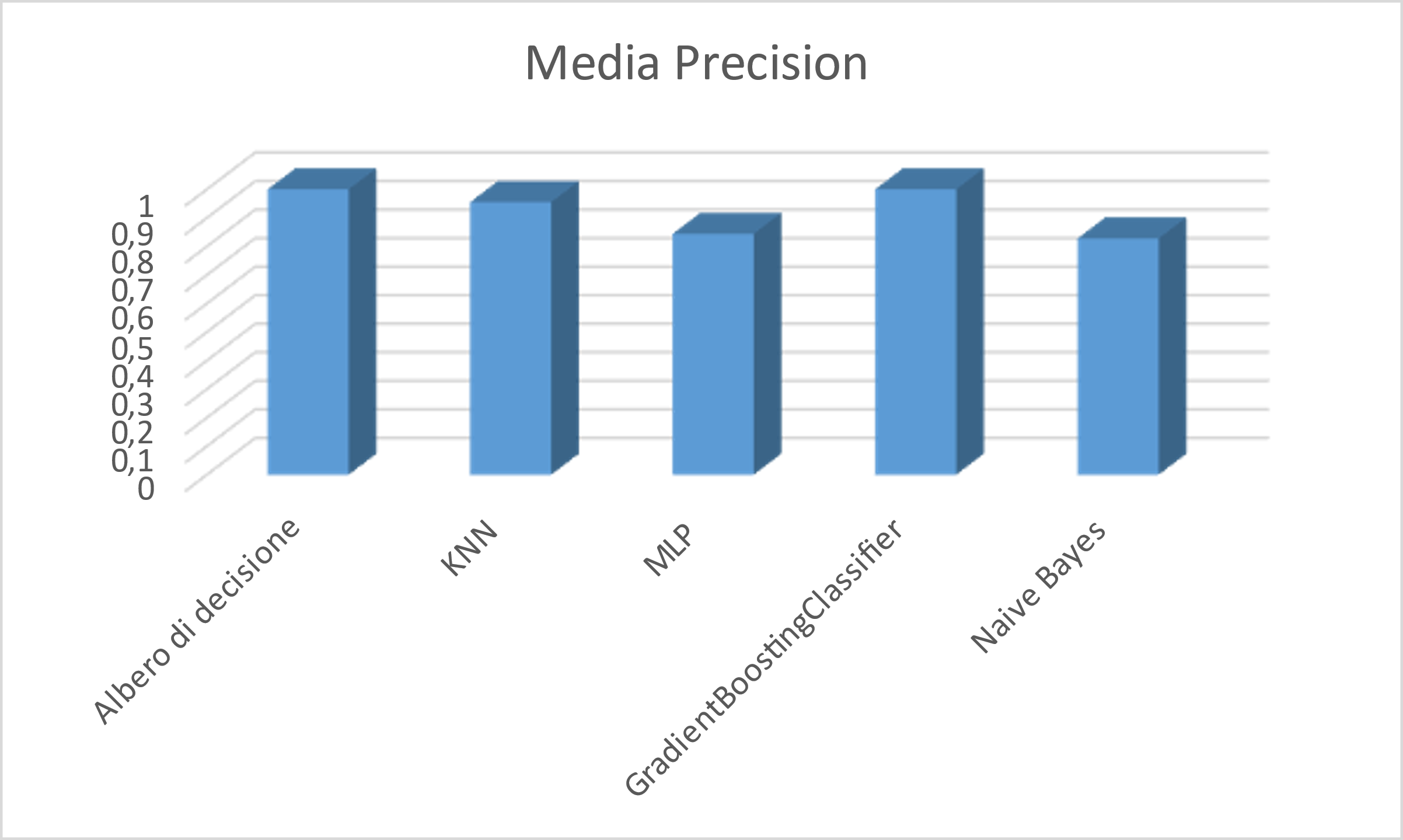
La predizione segue una determinata logica di combinazioni tra tre campi, corrispondente alle seguenti condizioni:

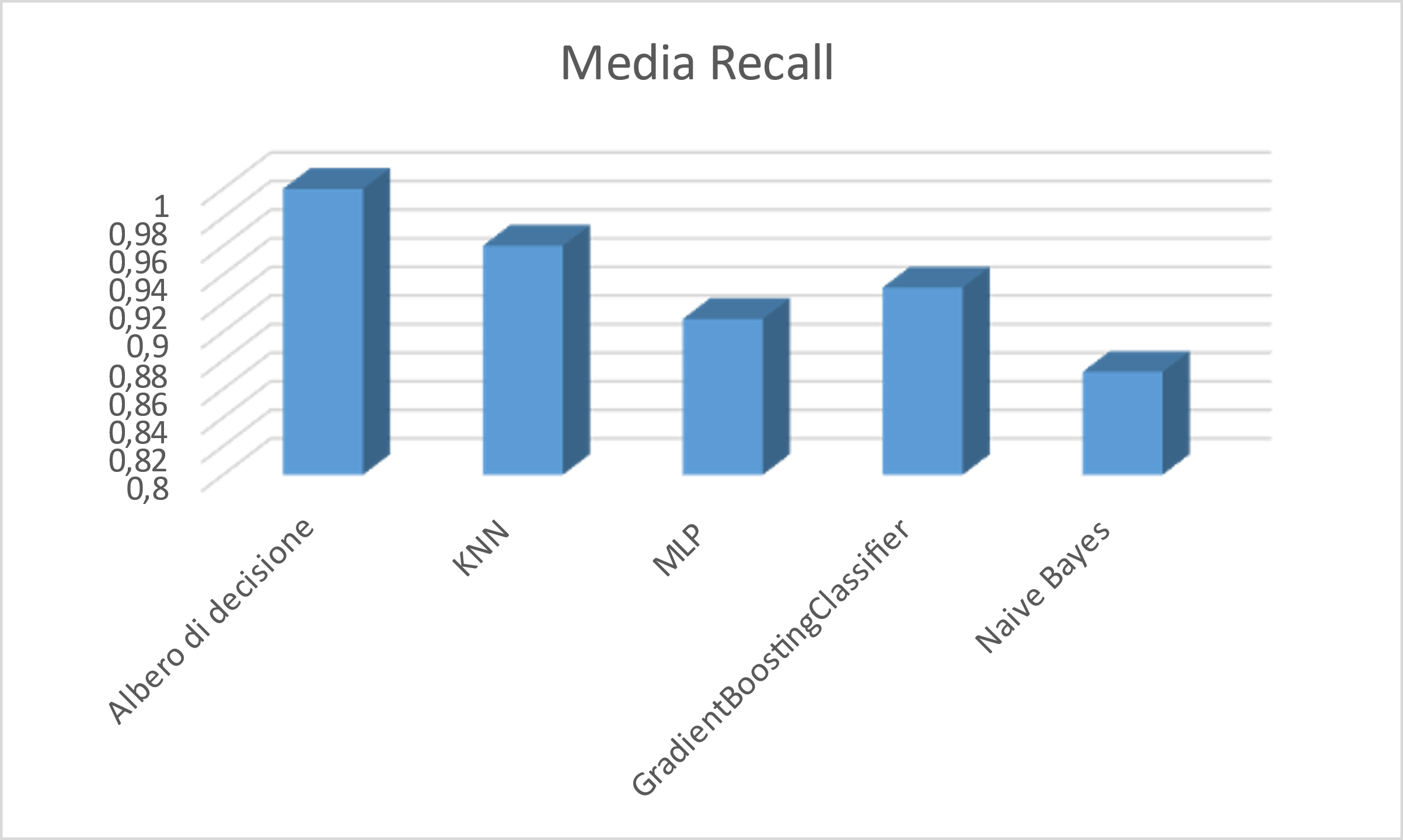
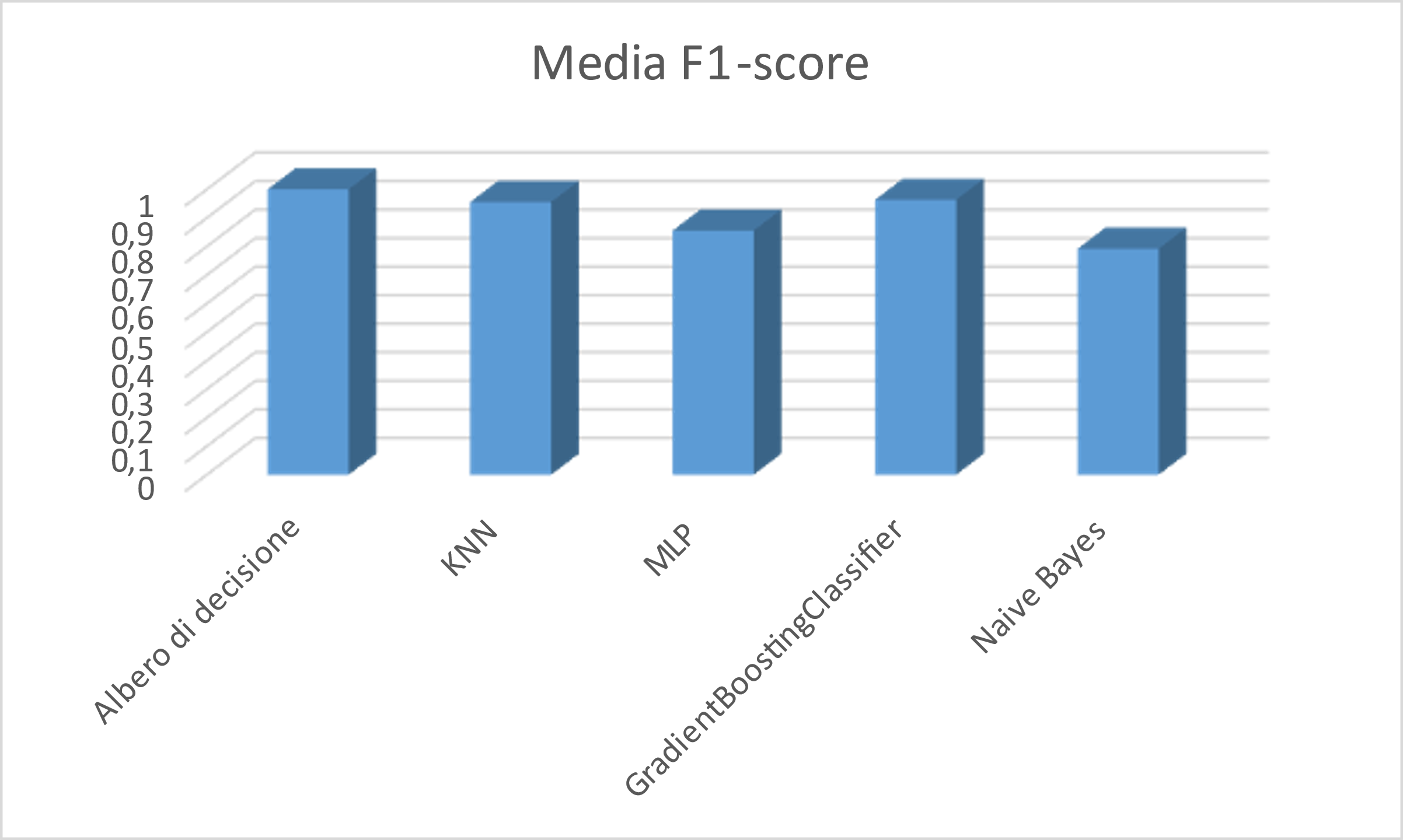
|  |  |  |  |
| --- | --- | --- | --- |
| **REATO** | **ETÀ** | **PRECEDENTI PENALI** | **PENA** |
| 1 | <=50 | Qualsiasi | Carcere |
| 1 | >50 | >1 | Ergastolo |
| 1 | >50 | <=1 | Carcere |
| 2/3/5/6 | Qualsiasi | <=1 | Arresti domiciliari |
| 2/3/5/6 | Qualsiasi | >1 | Carcere |
| 4/7 | >60 | >1 | Ergastolo |
| 4/7 | <=60 | QuQualsiasi | Carcere |
| 4/7 | >60 | <=1 | Carcere |
| 8/9 | Qualsiasi | Qualsiasi | Carcere |

**Albero di decisione**

L’applicazione utilizza il DecisionTreeClassifier per determinare il luogo in cui gli inputati sconteranno la loro pena. Anche in questo caso sono state effettuate delle statistiche sulle prestazioni di diversi classificatori, ma osservando i risultati posti in seguito, il migliore risulta essere l’albero di decisione. Risultati ottenuti dalle medie di 5 esecuzioni del programma:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Classificatore | Media accuratezze | Media precision | Media recall | Media f1-score |
| |  | | --- | | Albero di decisione | | 1 | 1 | 1 | 1 |
| KNN | 0.869215 | 0.955 | 0.9602 | 0.9555 |
| MLP | 0.9 | 0.844 | 0.909 | 0.8555 |
| GradientBoostingClassifier | 0.966051 | 1 | 0.931 | 0.9636 |
| Naive Bayes | 0.85195 | 0.828 | 0.872 | 0.792 |





I dati che vengono utilizzati sono:

* Reato, ovvero il reato commesso dall’imputato;
* Precedenti penali, ovvero il numero di precedenti penali dell’imputato;
* Pena.

Il risultato della predizione è un valore numerico attribuito ad un luogo con i seguenti valori:

|  |  |  |  |
| --- | --- | --- | --- |
| **Abitazione o luoghi appositi per i domiciliari** | **Istituto penitenziario minorile** | **Istituto penitenziario** | **Istituto penitenziario di massima sicurezza** |
| 0 | 1 | 2 | 3 |

**Regressore**

L’applicazione utilizza il RandomForestRegression per determinare la durata della reclusione in carcere o degli arresti domiciliari. Per la scelta del regressore sono state valutate l’accuratezza e il MAE eseguendo 5 volte il programma e raccogliendo i dati necessari. La valutazione ha fruttato i seguenti risultati:

|  |  |  |
| --- | --- | --- |
| Regressore | Media accuratezze | Media Mae |
| AdaBoost | 0.381136 | 1.779797 |
| Bagging | 1 | 0 |
| RandomForest | 1 | 0 |

La durata calcolata è distinta in mesi per quanto concerne gli arresti domiciliari, mentre per la reclusione in carcere è espressa in anni.

Per calcolare la durata abbiamo attribuito una valenza iniziale a ciascun reato e sommato a quel valore il numero di precedenti penali dell’imputato.

La predizione segue una determinata logica di combinazioni tra tre campi, corrispondente alle seguenti condizioni:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **REATO** | **VALENZA** | **PRECEDENTI PENALI** | **PENA** | **DURATA** |
| 1 | 12 | 0 | Carcere | 12 anni |
| 1 | 12 | 1 | Carcere | 13 anni |
| 1 | 12 | 2 | Carcere | 14 anni |
| 1 | 12 | 3 | Carcere | 15 anni |
| 1 | 12 | 4 | Carcere | 16 anni |
| 2/3/5/6 | 3 | 0 | Arresti domiciliari | 3 mesi |
| 2/3/5/6 | 3 | 1 | Arresti domiciliari | 4 mesi |
| 2/3/5/6 | 3 | 2 | Carcere | 5 anni |
| 2/3/5/6 | 3 | 3 | Carcere | 6 anni |
| 2/3/5/6 | 3 | 4 | Carcere | 7 anni |
| 4/7 | 6 | 0 | Carcere | 6 anni |
| 4/7 | 6 | 1 | Carcere | 7 anni |
| 4/7 | 6 | 2 | Carcere | 8 anni |
| 4/7 | 6 | 3 | Carcere | 9 anni |
| 4/7 | 6 | 4 | Carcere | 10 anni |
| 8/9 | 5 | 0 | Carcere | 5 anni |
| 8/9 | 5 | 1 | Carcere | 6 anni |
| 8/9 | 5 | 2 | Carcere | 7 anni |
| 8/9 | 5 | 3 | Carcere | 8 anni |
| 8/9 | 5 | 4 | Carcere | 9 anni |

**Prolog**

L’applicazione utilizza il Prolog, per consentire la visualizzazione di alcuni dati relativi ai penitenziari italiani, interagendo con una base di conoscenza da noi redatta, composta da asserzioni.



Più nel dettaglio, ci permette la visualizzazione delle carceri italiane, in base alla tipologia di carcere assegnata dal sistema di predizione, alla città e alla regione in cui è dislocato, e infine al numero di posti totali.

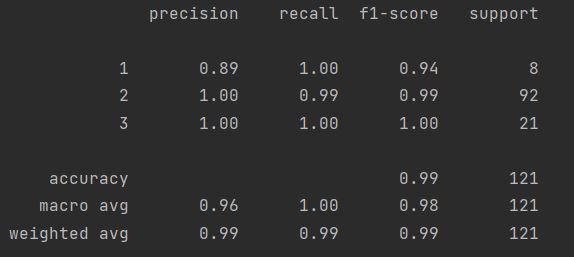
![Immagine che contiene testo

Descrizione generata automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RD0RXhpZgAATU0AKgAAAAgABAE7AAIAAAAOAAAISodpAAQAAAABAAAIWJydAAEAAAAcAAAQ0OocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAE1pa2kgUml2aWVsbG8AAAWQAwACAAAAFAAAEKaQBAACAAAAFAAAELqSkQACAAAAAzU0AACSkgACAAAAAzU0AADqHAAHAAAIDAAACJoAAAAAHOoAAAAIAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAyMDIyOjA2OjE3IDE2OjUwOjE1ADIwMjI6MDY6MTcgMTY6NTA6MTUAAABNAGkAawBpACAAUgBpAHYAaQBlAGwAbABvAAAA/+ELIGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDYtMTdUMTY6NTA6MTUuNTM1PC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPk1pa2kgUml2aWVsbG88L3JkZjpsaT48L3JkZjpTZXE+DQoJCQk8L2RjOmNyZWF0b3I+PC9yZGY6RGVzY3JpcHRpb24+PC9yZGY6UkRGPjwveDp4bXBtZXRhPg0KICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICA8P3hwYWNrZXQgZW5kPSd3Jz8+/9sAQwAHBQUGBQQHBgUGCAcHCAoRCwoJCQoVDxAMERgVGhkYFRgXGx4nIRsdJR0XGCIuIiUoKSssKxogLzMvKjInKisq/9sAQwEHCAgKCQoUCwsUKhwYHCoqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioq/8AAEQgA9gWPAwEiAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8A8igha4uY4UIDSOEBPTJOK19S8LXOnQ3UiXtlefY32XKW0jFoTnGSGUcZ4yM1naX/AMhez/67p/6EK6y6glhu/GlxNG6QsXjV2XAZjOpAB7nAND2+/wDQFv8Ad+JxNWbHT59QacW4UmCF533HHyqMmvQPDVvNbnRbG4vZRBdRiRrS3sA8MqOTnzJC3Jx1ODisXwhqeoWdzqtlY3U0cS2lxJHEjH/WAcED14oel/n+ALW3y/E5Cium0N9T1XxNJd3l032q3t3leWeEzOqqMZVD1YZ4/Orfi8Cfw5pV5LcXF3O00yfaLq2EMjqApAIycgEnBz3oegLVnHVq3egtbaKNTiv7O6h81YmWBn3IzKWAO5QOgPQ1lV0FrHJN8P7xYUaRl1GJiFGSB5bjND2f9dQ6/wBdjn6K6zwxFc2mjXV9Hey2KtcLAXtbPzp8gZx1G1efxNVPHEKQ+KZPLXbvhikfMYQljGpJKjoSeSPWh6AtTnqs3mnz2C2xuAoFzCs8eDn5SSBn8jUUE8ttcRz27tHLGwZHU4KkdCK67xTrWtT6VpiteXT2txp0bT8kq7bmyT78Ch7XBbnL21l9ps7qf7VbxfZ1DeXLJteXJxhB3I71Vrq9IudSufBWtWcr3EltHBEYIjkqMzLnaKdo0+o2Xge8l0oSLcJqMYLRplkGxvy5wPx96AX9fcclUttCtxcxxPNHArnBllztX3OAT+ldy8OPHVzIsCfb10vz1j8sZFz5AJO3+9nJx61j+IJbq78L6ZeauGN+88yCSRcO8QC4z6gEnBo2/rzsG/8AXlcydX0eTR5LdXube5S4hE0cluWKlSSP4gD1U9qz66HxFDLJpmgypG7RjTQC4UkAiR8810OlPexXHhqysYidKu7dTdosQMcpLsJC5xzgevSi2/rb8wvpfyuee0V2GhC9Tw9qZ8Mq734vEVvJUNJ5GG6d8ZxnFR+Kbq/svGSz2LvDdraQfNb8Y/dKDjHaj+vwuH9fjY53ULL+z7swfabe6wqt5ltJvTkZxn1HeqtdT4rtbm98bqrA77kWyCSUHaWMaDk/XrW7qiPPoOvQXl5cXf2RF2Rvp4gigcSKP3Z3HtkYwMijZXBatL0/E85oorqdFmvLPwbe3WjBxeG9jjlkiTc4iKMcdOAW/OjpcOpg6lps2l3S29wyM7RJKChJGHUMOoHODSahZf2fdmD7Tb3WFVvMtpN6cjOM+o710Pii51Cy8YJPZNLb3iWkGfJG1lPlKCMDp6VW8crM3iiaaZXO+KAl2B5PlLnmgF+n+RztFFdzHPrFrbaDa+HrYT21zaBpYTGDFPIWYOJD36AckYHpR0A4aiut8NR3NrpF3fxXslijXIg32dp582QM4B3DavPrzWo6LafEuZ4kAY6c0rBogu5zbEklOgJPJFD0/ryuH9fjY8+ordfXZNb/ALPtdZAmeO6BN05AbyjgFDx0HJ9s1reIbnXZJdbtJrUPpltJhRLGFW2UPhDH05IwOM5BPHeh6BucZRXpWmSQ2un6FFFJeNaz2waeytrATR3RLMH3NuHPbpxgVz+k38+meEtYuNNkMLi9gCPgblGJOnocUPS/9dbAtTlaK7HQL+LWvFr3s8Kw3K2DsGjjEheZU/1gTgFupx6ioPFk6XOlafJI95dXPmSA3l1aCEyJ8uF+8d2Dnn3oegLU5Wiiu5jn1i1ttBtfD1sJ7a5tA0sJjBinkLMHEh79AOSMD0o6AciumzNoz6mGTyUnWArk7txUtnpjGB61UrqtO1G70rwRdz2Mn2eb+00UOmCV/dt0PPp1rWhigk8fyTuoSZ9MFyhjhDkTGBWLKnALZJOPWjr/AF2uH9fjY8/orqvFk6XOlafJI95dXPmSA3l1aCEyJ8uF+8d2Dnn3rlaALVtZfabO6n+1W8X2dQ3lyybXlycYQdyO9Va6vSLnUrnwVrVnK9xJbRwRGCI5KjMy52im6ZqF3pPgW6mspGgnGpRrvA+Zf3bZxnp0oBa/15XOWord8Yhf+Eg80KqtPbQTSbRgF2jUscD1JzWTYLG+o2yz48ppVD59MjNNK7sJuyuQUV6Hqdxqkkfi2C9R1tLePZbhotqxr5y7VXjptH6ZqCxt5p9f8HXMMTvAltHulVcquyR92T2x3pLWz/rr/kN6X8v+B/mcHRXbeHZI4dA1K8t7u4tLg3yobi0thNIIyGIGMjapPf2Apj3McHxC+022m3UpEG6SIW4SUMYvmlEfIBz8+KP6/C4f1+NjjKs3mnz2C2xuAoFzCs8eDn5SSBn8jXR+JJr0WumasmpXNwPNcQyXVuIriNl2nkgncORg545qbxTrWtT6VpiteXT2txp0bT8kq7bmyT78Cl0DqcbRXoWlPexXHhqysYidKu7dTdosQMcpLsJC5xzgevSuAnCLcSCLlA5C/TPFN6OwLVXGUVv+Dk3axO8cYkuYrOaS2Uru/ehMrgdyOSKffNrerppQ1eFN005igupxtkkyVBDc5KgnrjueadtUhdLnO0V6NqiPPoOvQXl5cXf2RF2Rvp4gigcSKP3Z3HtkYwMiq+gXNzcaXpemWr3umSyKyowtFltrrLH5n7+x4IGKQzgaK6rSZL3TvCt/c6PuF+t8kUssC7mWPa3TjgFh+PFUvGUax+Im+RY5nghedFXbiUxqW47HNH9fhcP6/QwqKsWCxSalbJcY8ppkD5OBtyM/pXe+JZkNnrdtO99cxwkCCJ9PEcVoQ4ClX3HjHHTnND0VwWrscNBpk1xpN3qCNGIrRo1dSTuJfOMce1U6njvbiKyntI5MQXDK0iYHzFc7eevGTUFABRToi4mQxZLhhtwM89uKva5PqVzrE0uuI6XrY8xZIvLPQY+XAxxigDPoor0fT59TW88K2tvG7afc2iJcqIgySLvbcGOOgHPtnNMVzziiu28OGK18P6lcWl1cWkwvVj8+0thPII8MQOowpPfvgCpop0j8aanPawSQuulSuyzwCMl/JBLFOQMnnHvS/r8LlW1t/W9jg6tS2Xlabb3f2q3fzmZfISTMkeO7L2B7Vt6xeXGp+FNKv7xzNeC6mh84j5mUBCoJ74JOPrU3iCfUdR8I6Ncai1xPMstyGeUEkD5MZoEuhzo0+c6SdRAX7OswgJzzuK7un0FVq7Sy1/XR4BZrO+uzJBfJEvlsSUj8s4XjoMijwxIIfDV/eJd3NpeG8RJLi1thNKEKk4wSNoJ798Yo6v8Art/mHRf13OLorvIp0j8aanPawSQuulSuyzwCMl/JBLFOQMnnHvWVq15dan4X0m/uXaa+F1NCs2PnZQEKjI64JOPrR/X42D+vwucxVq2svtNndT/areL7Ooby5ZNry5OMIO5Heuq8Ratq9poB0a/urm8uZisl68pLLDjlYlPTOcFj68dqraRc6lc+Ctas5XuJLaOCIwRHJUZmXO0Udw7HKUV1nhiK5s9Gur6O9msVa4WAva2fnT7gM46javP4mtV0W0+JczxIAx05pWDRBdzm2JJKdASeSKHp/XlcFr/XnY8+q1LZeVptvd/ard/OZl8hJMyR47svYHtV3UPEF1q9hbw3w8+7glLJdH7+0gfJwOgIyPrWp4gn1HUfCOjXGotcTzLLchnlBJA+TGaA6nKUV6FpT3sVx4asrGInSru3U3aLEDHKS7CQucc4Hr0rgJwi3Egi5QOQv0zxQ9HYFqrjKKACSABknoBUtxbT2dw0F3DJBMn3o5UKsvfkGgCKrVtZfabO6n+1W8X2dQ3lyybXlycYQdyO9Va6vSLnUrnwVrVnK9xJbRwRGCI5KjMy52ijoHU5Siup0zULvSfAt1NZSNBONSjXeB8y/u2zjPTpVPxiF/4SDzQqq09tBNJtGAXaNSxwPUnND3/rtcFr/XnYxoIWuLmOFCA0jhAT0yTin31nJp+oXFnMVaS3laJyhyCVODj24p+l/wDIXs/+u6f+hCu31iXULj/hLLfU0b7FbsXtg8eFR/OAUqcdSCfrQ9F9/wCgLV/cefUV6T4at5rc6LY3F7KILqMSNaW9gHhlRyc+ZIW5OOpwcVheHLw6dbamscd9ArTIov7GIO8WN3yEHHB9iOlHWwdLnJ0V3dlZtD8QLr7fOs9wLJp4ZktQHLGIFW8rj5wOceorO8WTpc6Vp8kj3l1c+ZIDeXVoITIny4X7x3YOefekBytFFek+Grea3Oi2NxeyiC6jEjWlvYB4ZUcnPmSFuTjqcHFV0Fc82oqSdQlzIq9FcgfnW54MUnWp3iQPcxWc8lsNu4+aEO0gdz3FJaq5TVnY5+iu0vrq9m0Hw/c6wXEp1GRmklXazKPL5Pr9fanXltPa3fjSa4heKNwVV3UgMWnUrg98jmh6f16f5iWv9ebRxNaunaC2p2M08F/ZrJDE8rWzs4kKoMkjCkdPeu08NW81udFsbi9lEF1GJGtLewDwyo5OfMkLcnHU4OK5jwvHjWtShiBJNhdIijkk7DwKHpdev4AtbfL8TnaK6XwXbqviGT7Sjxyx2kskP7neyuF4ZUONxHJA9ql8WTpc6Vp8kj3l1c+ZIDeXVoITIny4X7x3YOefeh6AtTlaKK9H0+fU1vPCtrbxu2n3NoiXKiIMki723BjjoBz7ZzTFc84orsPD8U1ppt9fWt9LZQtdCBZLS08+Y4BIGcjavI+taLotp8S5niQBjpzSsGiC7nNsSSU6Ak8kUul/62uVbW39b2PPqK3JdYu/ES2NhehJrsXIWO6lODtbACHA+6Dz+NdVqiPPoOvQXl5cXf2RF2Rvp4gigcSKP3Z3HtkYwMih6K4lq7HnNFem2uoXUENlHFJtRItM2jaON4Kt+Y4PtWfpYisrHW5rW4uLGdNT8ozWdqJpFj+bC4yNqkjr7AUPRv8Art/mBw1vC9zcxQRY3yuEXJ7k4FLd20lleTWs+BJDI0b4ORkHBrqrrUpbD4gRS6Y1xYmYwJPuj8lnzt3EqCcBjzj3qr4p1DVbrxNPBqM9w8EN64gSXO1Rvxxn2xTWrS7/APADZM5qiuy8VeI7ldc1zTLpVuLR5GSKIgAQuGBDjjr1z65rQ0p72K48NWVjETpV3bqbtFiBjlJdhIXOOcD16VK1Vweh57RT5wi3Egi5QOQv0zxWx4SuI4tfS2uDi3v0a0l+jjAP4Ng/hTWuwPTcxKK6vUEOiDQ9HnxHJFN9ruvZmcBc/RFH51bvLae1u/Gk1xC8UbgqrupAYtOpXB75HNH/AAfwDrb0/E4mtXTtBbU7GaeC/s1khieVrZ2cSFUGSRhSOnvXW6U97FceGrKxiJ0q7t1N2ixAxykuwkLnHOB69K5/wuinWdSigywawuljA5LfIcAetD0v8/wBa2+X4nO0V0vgu3VfEMn2lHjljtJZIf3O9lcLwyocbiOSB7VL4snS50rT5JHvLq58yQG8urQQmRPlwv3juwc8+9D0BanK0UV3Mc+sWttoNr4ethPbXNoGlhMYMU8hZg4kPfoByRgelHQDhqK7TwwVtvDd/cw3M9ldC8SNprO2E7qm0kL94YUnvnnAFT28sa/ESaa3geJvsMjus8AjLP8AZySxTkDJ5x70bf15XD+vxscJRW6+uya3/Z9rrIEzx3QJunIDeUcAoeOg5PtmtbxDc67JLrdpNah9MtpMKJYwq2yh8IY+nJGBxnIJ470PQNzjKK9J8NW81udFsbi9lEF1GJGtLewDwyo5OfMkLcnHU4OKwdLvbjSfCmsy2EhhlW9hVHA5UYk6Hsfeh6f152BanKUV2OgX8WteLXvZ4VhuVsHYNHGJC8yp/rAnALdTj1FQeLJ0udK0+SR7y6ufMkBvLq0EJkT5cL947sHPPvQ9AWpytat3oLW2ijU4r+zuofNWJlgZ9yMylgDuUDoD0NZVdBaxyTfD+8WFGkZdRiYhRkgeW4zQ9n/XUOv9djn6K7PwsVtfDF9cRXNzZXQu0jea1tRNIqbSduCRtBPf2xWN4taJvEUrQwyw7o4zIssIiYvsGW2AnGTzj3oejsC1Ri0VYsEik1K2S4x5TSoHyf4cjP6V1fiG512SXW7Sa1D6ZbSYUSxhVtlD4Qx9OSMDjOQTx3oeiBbnGUV6T4at5rc6LY3F7KILqMSNaW9gHhlRyc+ZIW5OOpwcVg6Xe3Gk+FNZlsJDDKt7CqOByoxJ0PY+9D0/rzsC1OUorrtG1D+2fE018LWMXyadI0YChvNuFj4cLjG49cetVLyfVNQ/smXxHCvkvcFFuZRtlkXK7g3OSozwcdzzTtqkK+lznKK9F8SzIbPW7ad765jhIEET6eI4rQhwFKvuPGOOnOazZfEF5omj+HPsxBga2Zp4SBidfOfKtx0xn86lO6uM5SwtPt99FbfaILbzDjzbh9ka8Z5PaoHXY7LkNg4yDwa6rwPf3sfi6BLBpoLO5uP3sUZJUjnAPrjNcxPG8UpEqMhznDDFMO5HVqWy8rTbe7+1W7+czL5CSZkjx3ZewPaqy7g42Z3Z4x611XiCfUdR8I6Ncai1xPMstyGeUEkD5MZo6B1OdGnznSTqIC/Z1mEBOedxXd0+gqtXaWWv66PALNZ312ZIL5Il8tiSkflnC8dBkVB4aW6g0i71Fb+azElysLS21p585bG7Gcjapz+Jo6v+uwdF/Xc5/S9NXU7gwm+tbNuApuS4DknGBtU81Ff2cmnajcWU5VpLeVonKHIJU4OPbiui8URR2/jyEqNgf7PI5KCPLFVLEr2JPJHrWd4pgni8Xam5ikTdeyFCVIz8xIxR2+f6B3+RQlsvK023u/tVu/nMy+QkmZI8d2XsD2qrXV+IJ9R1Hwjo1xqLXE8yy3IZ5QSQPkxmt7w1bzW50WxuL2UQXUYka0t7APDKjk58yQtycdTg4oFfQ82orrLK/udI8G30unSmCUaoiK6j5lGx+h7dK1IYoJPH8k7qEmfTBcoY4Q5ExgViypwC2STj1o/r8Lj8v63sef1q3egSW+mtfW97Z30EbKsptnYmIt03BlB56Z6Vq+LJ0udK0+SR7y6ufMkBvLq0EJkT5cL947sHPPvVa9ubbS/DcdhZWtws2pQxy3U9xkA4JIVAQPlzg7snNHQDnq1dO0FtQ02W+e/s7KCOUQlrlnGWIJAG1T2BrKrqNKewTwHdHVIbiaL+0Y9q28ojbd5bdyp469qOjf8AW4dTD1PTLjSbz7Pc7GLIsiSRtuSRCMhlPcGqddjoesf2j4uSeG3WCG206aGCEnftRYWwCT97vnjvWW+uya3/AGfa6yBM8d0CbpyA3lEgFDx0HJ9s00ru39bhfS/9bGFRXoviWZDZ63bTvfXMcJAgifTxHFaEOApV9x4xx05zVi11C6ghso4pNqJFpm0bRxvBVvzHB9qS1/D8Qeh5lRXe6WIrKx1ua1uLixnTU/KM1naiaRY/mwuMjapI6+wFNt5Y1+Ik01vA8TfYZHdZ4BGWf7OSWKcgZPOPelfS/l+lx21t/W9jhKK3X12TW/7PtdZAmeO6BN05AbyiQCh46Dk+2a6jxLMhs9btp3vrmOEgQRPp4jitCHAUq+48Y46c5pvRCWrsedUVpWlxqsehX0Nokh06RkN0ywhlBB+XLY+Xn3FZtABRRRQAUUUUAKrMjh0YqynIYHBBq1eatqOoqq6hqF1dKpyonmZwD+JqpRQBch1fUre3WC31C6ihRtyxpOyqpznIAPXNQQ3U9tcC4t55IplORJG5VgfqOaiooAtNqd+98L1765a7HS4MzGTpj72c9Kbc6he3oxeXc9x8xb97KW5IAJ5PXgflVeigAqxZ6je6dIz6feXFq7DDNBKyEj8DVeigC3DquoW0sslvf3MUk5zK8czKZD/tEHn8agnuJrmTfcyySuFC7pGLHAGAMnsBUdFABVpdTv1sDZLfXK2jdbcTN5Z5z93OOtVaKANGDxDrVtAkNtq9/DEgwkcdy6qo9AAeKmg8RXlvpU1tDLOlzLdi5N2sxD52spHqc7s5zWRRQBL9quPtX2nz5PP3bvN3ndu9c9c066vbq+m82+uZrmTGN80hc49MmoKKALcWq6hBZvaQX91HbOCGhSZgjA9cqDg02LUr6C1e1gvbiK3k+/EkrBG+oBwarUUAXNNuLK3mdtQtJrpSuFWK48kg+52tn6VZvvEF3ca0+o2Mkmnv5axIIJWBRFUKF3DBPAFZVFAF281nVNQiWO/1K7uo1bcEmnZwD64J60k2sancxmO41G7lQrsKyTswK5BxgnpkDj2qnRQAVPaX93YMzWN1NbM42sYZChYehxUFFAFuPVdQhu/tUV/dR3GwJ5yzMH2gYxuznGAOKdeazqeoxCLUNRu7qNW3BJ52cA+uCetUqKACrMOpX1vavbW97cRQSffiSVlVvqAcGq1FAFi01G9sN/2G8uLbzBh/JlZNw98Hmj7feG48/wC1z+ds8vzPMO7bjbtz6Y4x6VXooAKsz6lfXNslvc3txNBH9yKSVmVfoCcCq1FAFqHU7+3tXtre9uIrd/vxJKyo31AODUKzzLbvAsriF2DNGGO1iOhI7kZP51HRQA6KWSCVZYXaORDlXQ4Kn1BqW7vru/lEt9dTXMgGA80hc4+pqCigAqzDqV9b2r21ve3EUEn34klZVb6gHBqtRQBIJ5hbm3EriEsHMe47SwGM46ZwetON5dNcJcNczGaMAJIZDuUAYGD1GB0qGigCe7vru/lEt9dTXMgGA80hc4+pqCiigDRg8Q61bQJDbavfwxIMJHHcuqqPQAHiqkl5czJIktxK6ySea6s5Id/7x9TyefeoaKAJJp5rhw9xK8rBQoZ2LEADAHPYDio6KKANeDxFeLp15aXcs92txbiCPzZiRCA6twDn+7jHFUYtRvYLR7WC8uI7eT78KSsEb6gHBqtRQBPaX13YSGSxuprZyMFoZChI9Mimrd3C3X2pZ5Rcbt3mhzvz6565qKigCxeX95qEgkv7ue6dRgNNIXIH1NOXU79bA2S31yto3W3EzeWec/dzjrVWigCzFqV9BavawXtxFbyffiSVgjfUA4NVqKKAHRSyQyrJC7RyKcq6HBB9Qalur67vphLe3U1zIBgPNIXIH1NQUUAXJtY1O5jMdxqN3KhXYVknZgVyDjBPTIHHtSQatqNratbW1/dQwNndFHMyqc9eAcVUooAntL67sJDJY3U1s5GC0MhQkemRUUkjyyNJK7O7HLMxySfUmm0UAFWp9Tv7q2S3ub24mgj+5FJKzKv0BOBVWigAooooAUEqwKkgg5BHapLi5nu52nu5pJ5W+9JK5Zj9SaiooAK17vxFeT2drbWss9pHDarbSLHOQJgCxyQMf3sY5rIoo8gJ7S+u7CQyWN1NbORgtDIUJHpkUgvLlZpJVuJRJKCsjhzucHqCe+e9Q0UASrdXCxxxrPKEifzI1DnCNx8wHY8Dn2q7L4j1ueF4p9Y1CSN1Kuj3TkMD1BBPIrNooAs2epX2nMzafe3FqXGGMErJu+uDSWuoXljM0tldz28jDDPFIUY/Uiq9FAEwvLlZpJVuJRJKCsjhzucHqCe+e9ILq4WKONZ5AkTl41DnCNx8wHY8Dn2qKigDQuNf1i7t2gu9Wvp4X4aOW5dlb6gmlg8Q61bQJDbavfwxIMJHHcuqqPQAHis6igC3Dquo28s0tvf3UUk5zK6TMpkP+0Qefxpn2+8Nx5/2ufztnl+Z5h3bcbdufTHGPSq9FACo7RyK8bFHUgqynBB9RWjL4j1ueF4p9Y1CSN1Kuj3TkMD1BBPIrNooAsxalfQWr2sF7cRW8n34klYI31AODVaiigCxp9ylnqVtcyxeckMqyNFu27wDnGcHFGoX0upalcXtycy3Ehkb6k9Kr0UAFaMHiHWraBIbbV7+GJBhI47l1VR6AA8VnUUATSXlzMkiS3ErrJJ5rqzkh3/vH1PJ596bNPNcOHuJXlYKFDOxYgAYA57AcVHRQAqsyOHRirKchgcEGrNxqmoXcPk3d9czxbi+yWZmXcepwT196q0UAXIdX1K3t1gt9QuooUbcsaTsqqc5yAD1zTLXUb2xlaWxvLi2kf7zwyshb6kGq1FAEpu7g3f2o3EpuN27zt5359c9c067vru/lEt9dTXMgGA80hc4+pqCigAq5Dq+pW9usFvqF1FCjbljSdlVTnOQAeuap0UAKSWYliSScknvToZpbeZZYJHikQ5V0YgqfYimUUAal9rk+o6Pb2d2ZJpYZ5JmuJZS7PuCjBz6bfWqk+o3t1bx29zeXE0Mf3I5JWZU+gJwKrUUAXIdX1K3t1gt9QuooUbcsaTsqqc5yAD1zVeK4mguFngmkjmU7lkRiGB9cjmo6KALU+p39zdpdXN7czXEYASaSVmdcdMMTkUy7vru/lEt9dTXMgGA80hc4+pqCigArXu/EV5PZ2ttayz2kcNqttIsc5AmALHJAx/exjmsiijyAsWmo3thv+w3lxbeYMP5MrJuHvg80fb7w3Hn/a5/O2eX5nmHdtxt259McY9Kr0UAHTpVybWNTuYzHcajdyoV2FZJ2YFcg4wT0yBx7VTooAsDUL0YxeT/AChAP3rcbPu9+3b0pbfUr60uHuLW8uIJpM75I5WVmz1yQcmq1FADpJZJpWkldnkY5Z2OST6k1YutU1C+WNb2+ubhYv8AViWZnCfTJ4qrRQA+aaW4mea4keWVzlndizMfUk9ami1K+gtXtYL24it5PvxJKwRvqAcGq1FABSqxVgykgg5BHakooAlubq4vbhp7yeS4mb70krlmPbknmpJ9Rvbq3jt7m8uJoY/uRySsyp9ATgVWooAsxalfQWr2sF7cRW8n34klYI31AODUMM8ttMs1vK8UqHKvGxVlPsRTKKALU+p39zdpdXN7czXEYASaSVmdcdMMTkUy7vru/lEt9dTXMgGA80hc4+pqCigAqzDqV9b2r21ve3EUEn34klZVb6gHBqtRQBPaX13YSGSxuprZyMFoZChI9MikW8uUuGuFuJVmcENIHO5sjByevIPNQ0UAFWZ9Svrm2S3ub24mgj+5FJKzKv0BOBVaigC5Dq+pW9usFvqF1FCjbljSdlVTnOQAeuar/aZxC8PnSeVIwZ03HazDoSO55P51HRQA6KWSCVZYXaORDlXQ4Kn1BqW7vru/lEt9dTXMgGA80hc4+pqCigAqxZ6je6dIz6feXFq7DDNBKyEj8DVeigC1Bqd/bXUlzbXtxDPJkvLHKys+eTkg5NV5JHmkaSZ2kdjlmY5JPqTTaKACrM+pX1zbJb3N7cTQR/ciklZlX6AnAqtRQBch1fUre3WC31C6ihRtyxpOyqpznIAPXNV/tM4heHzpPKkYM6bjtZh0JHc8n86jooAdFLJDKskLtHIpyrocEH1BqW7vbq/lEt9czXMgGA80hc49MmoKKALU+p391bJb3N7cTQR/ciklZlX6AnAqGSeaWONJZXdIl2xqzEhBnOB6DJzUdFAFyz1fUtOjZNP1C6tUY5ZYJ2QE+pwaivL+71CYS391PdSBdoeeQuQPTJ7VBRQAqO0civGxR1IKspwQfUVoy+I9bnheKfWNQkjdSro905DA9QQTyKzaKALNnqV9pzM2n3txalxhjBKybvrg0W2pX1k0hs7y4tzJ98xSsu/64PNVqKAJJ7ia5k33MskrhQu6RixwBgDJ7AVYm1jU7iKKO41G7ljhYNGjzswQjoQCeCKp0UAaUviPW54Xin1jUJI3Uq6PdOQwPUEE8ioYdX1K3t1gt9QuooUbcsaTsqqc5yAD1zVOigCQ3M5gaEzSGJn8xo9x2lum4j15PNON5dNcJcNczGaMAJIZDuUAYGD1GB0qGigCe7vru/lEt9dTXMgGA80hc4+pps91cXIjFzPJMIkCRiRy2xR0Az0HtUVFABUgnmFubcSuISwcx7jtLAYzjpnB61HRQBJDPNbSb7eV4n2ldyMVOCMEcdiOKjoooAtT6nf3Vslvc3txNBH9yKSVmVfoCcCmjUL0YxeT/KEA/etxs+737dvSq9FAFm31K+tLh7i1vLiCaTO+SOVlZs9ckHJpi3lylw1wtxKszghpA53NkYOT15B5qGigAq1Pqd/dWyW9ze3E0Ef3IpJWZV+gJwKq0UASpdXEVtJbxzypBKQZIlchXx0yOhxUVFFABRRRQAUUUUAOjZUlRnQOqsCVJxuHpXUeIdSl1TwfpE8yRxgXNwkcUSBUjUCPCgelcvGVEimRSyAjcoOMj0z2rfvdd0i50OPTYNGuIRC0jwyNfbtrOBkkeWMj5RxxQ9gW5z1bmm6bpZ8OzapqjXZ8u7WAR27KNwKk9SDjp1/TvWHXSaZf6fb+DbiG/hW63X6N9nE/lyYEbfMDzxnjoRzR0f8AXUOq/roSR+FIZvFTWEMtxLaC1F4uxAZnjKBwoHTdyBUOu+HE063sbqK3vrSO6kaJoL5AJEK45BwMgg+nY1H/AMJRJ/wkL6j9lQQvB9mNqHIAh2bNobrnAHPrVTUdUtbl7cWVi1skLFj5lw0rucjqSAMcdhTVrr+uv+QdP67f5mrrGi6DZ3OqWNrd3Ud3Y5KNcsmybBAKAAA7sH8cHgVy9XdY1H+1tau7/wAryftEpk8vdu257ZwM1SqVe2o2bOmabYf2LPqurtctCk628cVsVVmYqWJJYEAAD071Pp2g2Wq+JJLXT7m4ubJIWuMxxfvmAXJQL3bPy+nequmaxBa6dNp+o2P220lkWYKsxiZHAIyGwexxjFSQeIRba7JfQWEMVvJEYGtIiVBjK7SNw53d93XPNPr/AF2/zF0/rv8A5FjXfDiadb2N1Fb31pHdSNE0F8gEiFccg4GQQfTsam1jRdBs7nVLG1u7qO7sclGuWTZNggFAAAd2D+ODwKytR1S1uXtxZWLWyQsWPmXDSu5yOpIAxx2FQ6xqP9ra1d3/AJXk/aJTJ5e7dtz2zgZpf8H9Bmsmk6JZ2tgusXN5HPfQeeJogpjgUkhcrgs3TJxiq+haTb6gLhpbbUr5oyAkOnRZJBz8xYggDjpjJqSDxHafZrMaho8d7c2MflQSPKQhXJKh0wQ2CT3HvUem6/Fa6TNp97ZNcQvP56mG4MJVsYwcA5HtVdX/AF/WhPRF4eFrWLxlJpN1NcJbLbNcBtoWRR5XmAMD3HQj27VQudP0q6gs5NFuJlknuPs72906l1PGHG0D5Tn06ippPFPmeITqgsgubQ23kiU8fuvLzkj8cfr3rChle3njmiOHjYMp9CDkUlur/wBa/wCQ3tp/Wn+Z12r+DYrPT9Qkt7fVIX08Ame7iCw3I3BTs4GOuRyciuOrd1XxBa6jDcMmmGG6um3SytdM6qc5OxMDGT6k1hUlfqPQ6nwcNJZNRF9b3Msy2M7EpIgXYFHQFSQ3oc49qp6Vp2lax4hNvF9st7LyJJMu6vICqFuoUAjI6YqlouqDSbySWS3+0QzQvBLFv2FkYYOG5wfwqe01e107WZLywsXSBoJIlhkn3Eb0Kk7toz1zjFN9/L/MS/X/ACDULTSGsLe60m4nUtKYpbe5ZWkXgEONoHynPp1Fa1/4Ut49Fvbu1ttWgNmiuJr2DZHcAsFO0YBU85AyeK5i0uXs72C6jCl4ZFkUMMgkHPP5V0F54rtp7fUkg02SKTUUxK8l40m07w3ygjpx0/Wh7aAt9S7b+F9EaG2+0S3/AJkiWjSbGTH78Y4yOMHn6ce9VvClva2vjNbOSS7S7S5aKC4t3QBCNwJKsjZquvivb5X+h/6tbRf9b18j8P4v096ZpXiCxsNck1W50yW4uPtDTRbbrYqZJ4I2HPXrxT6/f+lhdPu/4JW0FrJ/EUH9qRzzK8y7RC6r85cctlTke3FW/EUGm3Hiae00qG5huHvXjkM0itHkvj5QFBAz7nis24vbVdThutKtJLVYmVwks3m5YHOc7V46cVY1XV7S91FdQsLCSzujMZ5Ga48xWYnPA2jHPuaStpf+thvd2/rc2tX8GxWen6hJb2+qQvp4BM93EFhuRuCnZwMdcjk5FcdW7qviC11GG4ZNMMN1dNulla6Z1U5ydiYGMn1JrCpK/Ueh1HhLU73ytQ077VL9j/s+5fyN3y7vLPOKxdHs4r/VI4LgXBRgSVtYvMkfAztUep9e1Lo2qf2TfmdoRPFJE8MsRbbuR1KkA9jz1q7Za7Z6Zqkk9hp0qW01u0EsL3WXIbqVcKNp4HY/rVdb+X+YulvP/Ik8ReH49LsLO9ht760W4Z0a3v1AkUrjkEAZBB9O1c/Wzq2uw6hpdtYW1k1tFbyvIrPOZWbcFHJIH93/AOtWNUh0OjTSdEs7WwXWLm8jnvoPPE0QUxwKSQuVwWbpk4xS+CRaf8JNbRu93HdNLtt57Z0ATg5JV0bP6VFB4jtPs1mNQ0eO9ubGPyoJHlIQrklQ6YIbBJ7j3qLw/rNjo1+l9c6dJdXMUm+MpciJV46Fdhz+lV1F0I9BayfxFB/akc8yvMu0Quq/OXHLZU5HtxVrxKdFXxJcLb216my8kFwDMmGG45CAJ8vfGc1nXF7arqcN1pVpJarEyuElm83LA5znavHTipdb1Kx1S6a6tdPktJ5ZGkmLXHmKxJzwNoxznuanov67FdX/AF3NnxT/AGGljpv2e1vUnfTo2hYzJtA3N98BMsevII7Umg+FrXV7a1U2+rvJckg3UMH+jwHJAySPmHqQRisu71m0v9It4LrT3N5bQCCK5S4wu0MSMptOTyR1FaNl4xht202afTGmudPRI0ZbtkRlU8ZTB59849qel36k62RzEiGORkbqpINNp0r+bM74xuYnHpmm0le2pTtfQKKKKYgooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACinwxNPPHFHjdIwVcnAyTity88OW0dnevYaql5Pp+DcxiEquNwUlGz8wBI7CgDAooqza6dfXq5srO4uBu2ZiiZ/mxnHA64BOKAK1FS/Zbj7V9m8iTz92zyth3bvTHXNOubG7spxDeWs1vKRkRyxlWP4GgCCirdxpWo2kJmurC6giDbC8kLKob0yR19qqUAFFT2ljd38pjsbWa5cDJWGMuQPXApotpzc/ZhDIZ923yth3Z9Mdc0ARUVPc2N3ZTiG8tZreUjIjljKsfwNSXGlajaQma6sLqCINsLyQsqhvTJHX2oAqUVZh02+uLV7m3sriW3j+/KkTMq/UgYFNtLG7v5DHY2s1y4GSsMZcgeuBQBBRUyWdzJctbx28rTLndEqEsMcnI68Ypbuxu7B1S+tZrZmG5RNGUJHqM0AQUVZn02+tbeO4ubO4hhk+5JJEyq30JGDVagAorW0bw3qOuR3ElnbTNFDE7+YsLMrsozsBA+8c9KpyaXfxXhtJbG5S5C7zC0LBwuM524zjHNAFWip7uxu7B1S+tZrZmG5VmjKEj1GadPpt9bWyXFzZXEMEn3JZImVW+hIwaAK1FXU0bVJFRo9Nu3WT7hWBiG43ccc8c/SptE0SfWL4RiO6W3U4mngtXn8rg4yq89qAMyirunaVdarqQtNPhlnJYAtHEW2rnG4gdBzUmsaHf6JdSRX1rPHGsjRpNJEyLLg9VJHPrQBnUVZn02+tbeO4ubO4hhk+5JJEyq30JGDVagAorZ0jRrLVLO4P9oSxXkMEs/kfZtysqLn7+4Yz9KyIopJpVjhRpJGOFRBkk+gFHWwdLjaKnu7K6sJRFfW01tIRkJNGUOPXBqCgAoq3FpOozQefDp91JFs3+YkLFduSM5x0yDz7VHaWN3fyGOxtZrlwMlYYy5A9cCgCCipVtp3uvsyQSNOW2+UEJbPpjrmpLnTr6zIF3Z3EBZig82JlywxkcjryOPcUAVqK1NS0SXS9NtJrxbmC5nZw1vPaPFsAxghm4bOe3SqkWm309q91BZXEtvH9+VImKL9SBgUAVqKs2um318ubKzuLgbtmYomf5sZxwOuATUf2af7V9m8iTz923yth3bvTHXNAEVFTXVldWM3lX1tNbSYzsmjKNj1wahoAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigB0cbSypHGNzuwVR6k12Or6Bqfh3w9NY2+n3Deaqyahe+WdgA5Ean+6DyT3PsK4yih7WDqFdZottqF34Fu4dJ8wztqEeUifazDy24Hr2OPb2rk6trqUy6M+mBU8l51nLYO7cFK464xg+lHR/11Dr/XY7aOeEfEKVJ5C90dNEBaOVVdrjyQCFc5AbORn1rN8SFoLPSrKayurZ453dfttyssu0leMAAquRkZ965Cimnqn/W9w6W/rax1XijW7638U69beaZYbh2gaOQkqFBBBAzwRjg1ytFFSlZWG2dRokN5e+ELy00Yu199sjkkjifa7xBGH1IDVd0h7iLxxcR6zdJc3zWTxLJbyqrGTywAofGN+Plzzz3NcVRT6/12sLp/Xe51/iQtBZ6VZTWV1bPHO7r9tuVll2krxgAFVyMjPvUXijW7638U69beaZYbh2gaOQkqFBBBAzwRjg1ytFH/AAQO5jg1i6ttBuvD1yIba2tAssxkAigkDMXMg7dQeQcj1qr4asXudDvZI3vrom5VZLXTpkiOACRIxIJ25JA4xXIUUdWB6HM5i+JTywllf+yy4YuGbP2XqWHBPv3rkrfWpp1sbPUXE1tBdibfJlmAONwyT04zismihaO/9b3B6q39bWPRfErNBZ65M1netBeEBJ7m+R4X+cFWiUKCeBxgnArzqiiklYdzo/Bskz319awSN5k9hOkMYbG+QrwB78VP4bgv9N8XSJfpNBdx2c7YlzuX9yxBrlaKb1+635/5iRqw6nc6jHZaXe3KiFbretxLlmi3YB5J+7xnFdpqlo8GjeIvtEepFmhVhNe3KOs2JVw6IoGPrkgA4rzaih6oFo7npEFzPGloqTSKoi0rADEAZJzWb4a07UZ/iE9zZ2872kV+4meMHYvJ61xNFHW/r+IulvT8DYhtb3QvEdouoxTWTGZHYSZXKb+v04NaHiCzvbLxcbnVoplsZb9nieTlHTfkkeowa5eihaW8hvW/mei+JWaCz1yZrO9aC8ICT3N8jwv84KtEoUE8DjBOBXnVFFJKw7m94PG/VrmBSPNuLG4iiUnG9zGcKPc1Z8PaJfWniNre9F3YXK2ryRxR4SabjG1C3AJ559jXMUU/6/MXQ7LxdAIPC2lI0N1C6XM67LydZZE4Q4JAGB3xj+dcbRRQHQ6u+1e90rS/C81nO6GG3aUJuO0nzm6gdQcYq14bZNQ8PajFHb3U11JepM8GnzrDJs2tg8g5UE9O2RXFUUd/663Dsdx9vj/4Ty6MrLYTyWLW6Sy3Ctsm8raGaQYAY9z2Jqprltdp4R0e2nnW6uPtk6DyphLgkJhdwJBPPY965a2mFvcxyvDHOEbJjlztb2OCDj8au6nrUupQQW4tra0trcsY4bZSF3NjJO4kk8Dv2o/r8bh1/rtY6HWdA1seC9MNzYXW+2kuXnLocxqdhBPoOD+VaGlJey3Hhq9sZSNKtLdRdusoEcRDsZN4zxkHv1zXntFAdDpo7p4PAt+1lK8SvqiAFCVJXY5A/QVtxTR/8J8XnZjPcaSgRlkCO8rQL0Y8BjyAfU159RR/X4WD+vxudX4sLQaTp1lNZXVs8ckjr9tuVll2nbxgAFVyMjPvXKUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAqqXYKoLMTgADkmr11oWr2Vu095pV7bwrjdJLbuijPHUjFURncNuc54xXVSPHe+BpIdNvJfNtts+owzId0uW2ja2T8qkj5cDrmh7XDrY5Siiug0yHTYPCs+pX2ni8mS9SFFaVkG0oxOdp9v89KOlw6nP0V2EXhuwm8XvBHE32P7CL5Ld5gucxhhGZD0GTjPpVXX9Js7aCwuIoLe0mmlaOa1gvBcKAMYYEMSM5IwT2p21t/XYPP8AruczRXV69F4etdQ1fTI7FrOS1LfZrgTO5dwR8hByMEZwfbk1ylSncYUVu6ZbWFt4duNWv7P7cwuVto4WlZFXKlixK4J6Y61Po+m6XrXiaZbSGUWUdu1wLeaUISyr9zfnhd38R7U+v9eojm6K6bX9Js7aCwuIoLe0mmlaOa1gvBcKAMYYEMSM5IwT2qXXovD1rqGr6ZHYtZyWpb7NcCZ3LuCPkIORgjOD7cmgDlKK6dodD0m00yLUtPkuje2wuJrlJirxhiQAi5CnGO+c+1Q+HtMjura6uG0sX6o6ojXF2ttEvUnJ3AlunANAHPUV2P8Awj+nW/jqSxngZ7P7G1x5QmyVPk78Bx1weh7+9ZUy6PqkdithbnT7uS58mWFXeRShxhwW75JBGaFq7f12DbX+u5h0V2+ueHtOtbHU1S0t7NrL/j3mXUVlkuMMFIaPccEjJ4AxjFcRSvcdhyRvJny0ZtoLHaM4A702ur8F3drCmpxzabFPILCdzK0jgsu0fJgMBg+vX3qrokWm6x4lIm05YLQW0rm3ilfqsbHIYknOR9Kb0+6/5iWxz1FbF42k39patptm9pemYxSW0bvIHU42sC3fORjNb2peHbVdF1KUaWlhJZIrxuL9ZpX+cKRIgY4POeAMHijZBu7HE1Jb2813OsFrDJPK5wscalmb6AV3Fvo+hiG0WbS/McpZM7faHG8zDDcZ4x1GO/txWd4YjtLbxt/Z0lp5ubpoo7gTyRyRAbhkFGHJ96Otv60F0ucrsbzNm0784245z6UMrIxV1KspwQRgg1reHriCDxHbtdWiXe+dVUSO67GLj5vlIyfrxV3xFJa6l4sms7fT4rORr945J0kdjJl8ZIZiB68Yo3t5jel/I5uiu31zw9p1rY6mqWlvZtZf8e8y6isslxhgpDR7jgkZPAGMYriKV7jsSW9vNdzrBawyTyucLHGpZm+gFMIKsQwIIOCD2rofBMls3iS1tri0ErzyBUnWeSN4eDnaUYfrXPyEmRiSScnk0xDaKnsIkm1K2ilG5HlVWGeoJGa6jUdO0eU+ILSy042sullninE7MXAkCFWB4xzxjnjnND0QbnIUV2FjpekJPommXdi082qwrI9157K0Rdiq7VHHGB1zmqWgWGmut+l4trcXsTqsEN3dG3jdcncdwIyeBwSOtAdDnVBZgqgkk4AHehlZGKupVlOCCMEGukt0g0rxvHFcaMIwZYwltNcM3lElTuVlI3DuM5GD3qHxZeWk3iC8SDTYbZ47uXzJElkYy/MeoZiB+GKOwdzFe1uI7aO4kgkWCUkRyshCuR1APQ4qKuk117efwto9xaW32RHlnUwJPI6DBXkB2ODyelc3QHQKkmgmt5AlxE8TlQwV1KkgjIPPYjmtrTLfT7bw1carf2X21/tK20cTSsirlSxb5eSeMVZ8UT21v4qilks1uoBZ2+IJXYZHkrjJUg8Uf1+oL+vvsc7cWs9nN5V3BJBJgHZKhU4PIODUVb3i9I08VSKDIsRjhPzyNIVBjUkZYknr61o67pWnJpt1No+nQTWsW0x31tfmR1GQMyxk8Z+gwaOlwOQors7TTtE+06DYT6YZJNUtkMlwJ3BRmZlDKM4zwOvHtWZZWVhYaJd6jqFp9vaO8FpHE0rRqPlLFjtwT0wOaNv6+Qb/ANfM5+iuvj0PS4/E11HJbySWX9mG9jhMhDITEHA3DrgnHNZurW9hJoen6rYWX2MyzSQywCVnUlNpBBY5GQ3PNH9foH9fhcx3tbiO2juJIJFglJEcrIQrkdQD0OKSWCaBYzNE8YkXehdSN6+o9Rwea6DXXt5/C2j3FpbfZEeWdTAk8joMFeQHY4PJ6VriPTLybw1puoWBna8sY4hOJmUw5dwCoHBOeec0B/X4nEW9vNdzrBawyTyucLHGpZm+gFTWmmX+oSvHYWVxcvHy6wxM5X6gDitzwf8AZo/FcNjcWomeSfy0uFnkieLGQSpRh196xtOlkj1m3KSOpadckMefmHWnHVrzFLRPyKksUkEzxTxtHIjFXRxgqR1BHY097W4jto7iSCRYJSRHKyEK5HUA9DitDxOceL9VJGR9tl49fnNX9de3n8LaPcWlt9kR5Z1MCTyOgwV5Adjg8npUp3jcpq0rHN0UUUxBRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAPhleCZJoWKSRsGVh2IOQa177xRc31rcQi0s7Y3ZBuZbeIq82DnkkkDnngDmsWigAroNM1u30/wrPatFb3M8l6kn2e4jZlZAjDORjGDjuD+Fc/RR0Dqax8R3x1x9UPkmV08tojH+7Me3bs2/wB3HFQ3+rtetBss7S0jgJKx20ZUEnqSSST07ms+ijYC1qV/Lqmp3F9cKiy3EhdggIUE+mc1Vooo2A0tN1ubTbaa2NvbXdtMwdoLlCy7hnDDBBB5Pen/APCR339ttqZ8oyMnlNEYx5Zj27dm3+7jjFZVFAGhf6u160GyztLSOAkrHbRlQSepJJJPTuah1K/l1TU7i+uFRZbiQuwQEKCfTOaq0UAbdn4qvLO3t0FtZzTWilba5miLSQjJOAc44JJGQcVDY6/NZ2MtnLa2t7BJL52y6QttfGNwIIOcfhWVRQBsP4mvJNZOptFbiY2/2faEITb5fl5xnrj8M9u1ZKO0civGxVlIKkdjTaKOtwNjUPEc2owTLJY2EUtwQZ7iKHEkhznJJJAyeTtAzWPRRQBd0rVJtJvDPAkcm6NopI5VyrowwQQCD+tTRa29tqr31nZ2tuXieLyY1bywGQqSMsTnBz161mUUASW88lrcxXEDbZYnDo3oQcg1s3Piq4uLe8iTT9Pt/tybZ3hiYM53Bs5LHByO3HPSsKigDZXxRer5eIoP3a26j5W/5Y/d79+/9KXTfE0mm6lJfrp1jPdPMZlkmVyYyey4ccc981i0UAXbvUvPv47q2tLexaPBVbYNtyDnd8zHn/CptU1t9TuVufsVpaXAkMjzWysrSMTnJyxHXngCsyigDY1DxHNqMEyyWNhFLcEGe4ihxJIc5ySSQMnk7QM1j0UUAauia82hTCeHT7O4nR96S3CuWQ47bWA/OqmoXqX1wJY7K2sxtwY7cMFPv8zE5/GqtFAE9hKkOpW0sp2okqsxx0AIzW5r3ihry51SCxhtUgvJ2LXMcRWSZA+VBJP0PQE45rnKKHqGxt2fiq8s7a3Rbe0lmtVK21zLETLCCScA5xwSSMg4qpp+rmxjljksrO9jlIYrdRlsEdwQQR19az6KAL19q91f6ot/JsjlTZ5axrhYwoAUAegwKm1PW/7UukuJdOsopfMMkrQq484k5O7LH9Mday6KAN668Ufa9LWwbRdMjij3+UUWXMZbGSMyHngdc9KwaKKANLTdcm060mtDbW13bTMHaK5QsoYZwwwQQeTUlx4gkvdY/tG+sbO5fyli8l0YR4VQoOFYHOB649qyaKANjWfET6zIssunWNvOpU+dArhiFGADuYjGAO3anXPiaaezuIIrCwtGulCzy28JVpBkHHUgAkA8AVi0UAdVN4rWzttJ/s6G0nntbJU86aEl7eTc2dp4B4IPcVkadrk2nwTW729veW87iR4bpCy7xnDDBBB5PesyijrcOljVPiK9bU7q+cRNLc27W7LswqIV24UA8YHSq/8Aakp0y2sHiieC2naZQQcsW2gg89PlHTFUqKAN668Ufa9LWwbRdMjij3+UUWXMZbGSMyHngdc9KW38X3ltFaBbOxaWyh8q3neIl4uSdwOcZ57jHtWBRQBraLr76JcC4isLO5uFfek1wrlkPttYD86q3uoC6vEuILS3sSgGFtgwXIOc/MxOap0UAaupa9/akomn02xScy+bLNGjhpj3DfNjB74AqzdeKPtelrYNoumRxR7/ACiiy5jLYyRmQ88DrnpWDRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQA6KJ5pkiiG53YKoz1J6Vp33hnV9OtZbi8sykcL7JCJFYoc4GQCSAexPBqppf/ACF7P/run/oQrrtYSHTrnxTcT39rKb52hhgSXdIW84Mdy9VwFPJ/Ch6L7/0Bav7jnrXwrrN5axXNtZ74pkLxHzUBkAJB2gnJPB4HNV9O0XUNVMv2K33iHHmM7rGqZ6AsxAz7VoanqHlad4dksrlfPtLdm+RgTE/msRkdj0PNX9BvrW80G9s71LGe6kvFudl9O0CONpBIZSoyCehPen3/AK6i7GFDoGpz6jPYpasLm3XdLG7KmwZAySSBjkfnnpRqOg6npMaPqFq0Su7Rj5lb5h1BwTg/XqORW/PqcM2q620k9mudLFvGYHOxypjAVS3LHA/HFS6zqdmA8iXEUwTWln2xuGLII15A9OMZpdv662H/AF+Fznr7w3q2nWZubyzMcSkBzvVjHnpuUHK/iBT7XwrrN5axXNtZ74pkLxHzUBkAJB2gnJPB4HNdJr99aJa6xPZDRwuoHAkhupJJpgXDcoWIU8ZOQPasPU9Q8rTvDsllcr59pbs3yMCYn81iMjseh5pdAM/TtF1DVTL9it94hx5jO6xqmegLMQM+1Vru0nsbuS2vImhmjOHRhyDXUaDfWt5oN7Z3qWM91JeLc7L6doEcbSCQylRkE9Ce9ZHie8F7rjurWzCONIgbUsY8KoHBbk4xjPfFN7gjIrV1DS4dN0izadpP7Quh5xiyNscJ+7kYzubr16fWs+1kjhvIZZo/NjSRWeM/xAHkfjXX3Ot6TqWmeIriFLi3vLuKM4ublGD/AL1TtRQoPAHvwKHsC3OLrR0/QdR1S3aextw8SOI2dpUQKxGRksRj61nV1Gl2Zv8AwHdQLcwW7HUoyDcSCNW/dtxuPA9efSjpf+tw6mL/AGLqP9sHS/skn20HBh7jjOc9MY5z0xRf6Nf6ZLFHewbDMMxsrq6vzjhlJB/Ouqj1XT08aSq89vNCdNFl5zuwieQRBeWGCFJGM1n69cxR2unWMS6ZEkU7SmOxuHmCZ2jJcsRzjoD2prdL+t/6YdP67f0jNvvC2s6dbzT3lmUSBsS4kRinOMkAkge/Ssmt7xFqki+K9ZksLlXhu3eNnQhlkjJBxn04HIrBqU7q43oTixuDpzXwj/0ZZRCX3DhyCQMdegNWBomotqUVgtsWupUWRIwwOVK7gc5wBjnnpWlpQh1DwtdaWLu2trkXaXCfaZRGrqFZThjxkZHFXJ9RRvGyPp19aKsVslsJrgHyZdsQRgf9luRmq6/12/zF0/rv/kYGo6Lf6V5X22EKs2fLdJFkVsdQGUkZ9qmvfDerafZm6u7MxxLjed6sY89Nyg5X8QK1dX/syyk0u5RLOO7W4L3MGn3Bmi2AqQeSQCeeAaTXLWNbjV9Si123MN5IWiht5d73AZ9211BBUAcnd3FT0DqUbXQi3hy81S5ikZURTA0E8RCkvtPmJu3gemBVXTtD1DVYZJbCASRxMqyO0ioFJzjJYjHQ81t6Hpn/ABTeqo+oabE99BEIUkvolbIkDEEFsjgd6pQyR2vhHV7N7iEzG8hwiSg7wofJXH3h05HHSm+v9dQW39digdD1Iav/AGWbST7bn/Vcemc56Yxznpim6jpF9pLxrfw+X5oJRldXVwOuGUkH862PDWshtaJ1eWN1exezjM5KoBtwqsy4IHbPXmk8S3Ea6ZZWEKabEsckkvlWE7zbSwA5YkjnHQHtQ9AWpQ1HTbe00HSL2F5GlvUlMqsRtXa+0Y49PrWVWnqBmOiaWslxaSRqkgjjhkzJHl8nzB2JJ49qzKOoBRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFADopXhmSWI7XRgynHQjpT7q5lvLuW5uX3zTOXkbAGWJyTgcVGoLMFHUnAycVrX3hfVdNsftl3FAsB6Mt3E+7nHAViTz6UAZFFFFABRRRQAUUVattOuruzurq3i3w2ihpm3AbQTgcE5PPpQBVooooAKKKtS6ddQabb38sW22uGZYn3A7ivXjOR+NAFWpxfXC6c1iJP9GaUTFNo5cAgHPXoTUFWLCwudTvorOxj82eU4RNwXPGepIHagCvRV6w0e81O5kt7RIjLH95ZJ0j744LEZ/Cq11bTWV3Na3KbJoXMci5BwwOCMjigCKiiigAooooAKKKKACiiigAooooAKKKKACiiigAooq1Lp11Bptvfyxbba4ZlifcDuK9eM5H40AVaKKKACiiigAooqaztJ7+9itLRPMnmcJGmQMk9Bk8UAQ0UrKUYqwwVOCKSgAooqae0ntREbiNoxNGJY8/xKeh/Q0AQ0UUUAFFFS21vJd3McEG3zJDhd7hBn3JIA/GgCKirup6TeaPNHFfxqjSxiRNkqyBlyRkFSR1BqW80DUbHTkv7iKL7M7BA8dxHJhiCQCFYkcA9aAM2iiigAooqae0ntREbiNoxNGJY8/xKeh/Q0AQ0VattOuruzurq3i3w2ihpm3AbQTgcE5PPpVWgAooqW2t5Lu5jgg2+ZIcLvcIM+5JAH40ARUVd1PSbzR5o4r+NUaWMSJslWQMuSMgqSOoNUqACiiigAoq1qGnXWlXZtb+LypgqsV3BuCMjkEjpVWgAooooAKKnvLG4sJxDdx+XIyLIBuB+VgGB49iKfqGnXWlXZtb+LypgqsV3BuCMjkEjpQBVooooAKKsWFhc6nfRWdjH5s8pwibgueM9SQO1QOpR2RhhlOCPegBKKKKACiiigAooooAKKKKACipxZXDac18I/wDRllEJfcOHIJAx16A1BQAUUUUAFFFWLCwudTvorOxj82eU4RNwXPGepIHagCvRSupR2RhhlOCPekoAKKKKACiirmm6Td6tM0VisTOoBIknSPOfTeRn8KAKdFS3VtNZXc1rcpsmhcxyLkHDA4IyOKioAKKKKACilALMAoJJOAB3q/qWhX+kxq2oRRxbm27BOjMD6FVYkfiBQBn0VoroOonSxqJhRLYqXVpJ0RmAOCQpIY8+grOoAKKmt7Se7Mgto2kMUbSvj+FR1NRxRvNKkUSlndgqqO5PQUANop88MltcSQToUljYo6nqpBwRTKACiiigAooooAKKKekMkiM6rlVGSaTaWrFKSirtjKKKKYwooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAK39Z/wCRS8Of9c7j/wBGmsFWKsGHUHIyM1rX3ijVdSsfsd3LA0A6KtpEm3nPBVQRz6UPYDpLL7Gt94b019LsZItQtYxcO8ALtudlyG6gjHUc1k6BLptpHfx3RtYrkyKsFxe2pniUDO5SADgnjnB6GshdZv0urK4WfEtiqpbtsX5ACSOMc8k9c06w1zUNN877JOqrOQ0iPEkisR0O1gRnk84p9X8/zDp9x0VlpMTeNLpdSt9PiWKza6RY9xtmOwFWwMnbzuxj8O1VNeXT5bfTpYZdPlvDMyTHT4WjiZPl25BVRnkjgelY51vUTq/9pm7f7Z/z149MYx0xjjGMYpL/AFq/1N4mvJw4h/1arGqKmeuFUAfpQtGg7nQeJNQ06HVtZ0uTSbWKKNmW1ktoFV45Aw5Ld1PPH0wKqabMl14P1iGa0tCbSGNophboJQTKAfnxuPBx1rCvLyfUL2W7u38yeZi7vgDJPsOK07TxXq1jZi1tpbdYdoUqbOFtwHIyShJ/GpS01H10LPhq406CzvBd/ZYbp2QQXF7ameJRzuXGDgnjnB6Vch01E8WXrX1lZt5Fi95HBb5MEpEYZSB12nOcVh2mv6lYyXD20yL9pbfKjQoyMfXYQVHU9BTDrepHV/7U+1v9sz/rRj0xjHTGOMdMUxE+p332+ytbltJhtXV2U3EEXlxTYwdu0Dbkd8diM1d12VLzwvpF6bW0gnlluFc21ukW4LsxkKBnqay77XNQ1GaCS8nEhtzmJBGqonOeFAC89+Oat3Hi3V7qzNpPLbNAQw2CyhXGeuMJwfcUdA6mLXReCp1PiO1sZrW0uILqULILi3SQgYPQsDj8K52tLStf1HRc/wBmyRREtu3NbxyMD7FlJH4UCZXsONYtv+u6/wDoQq34o/5G7Vv+vyX/ANDNVL/UrnUrlbi6aPzFAUGKFIh1z0QAZ561PqOvahq0Kx38scu1t2/yI1cnGMlgoY/iaOi/rsV1ZnV3dl9jW+8N6a+l2MkWoWsYuHeAF23Oy5DdQRjqOa4Sry6zfpdWVws+JbFVS3bYvyAEkcY55J65pk6mg1rCngu7kESGaPU0jEu0bguxuM9cZHStl7e0tNZ1BlsbVvs+ixTLHJCpUSbYiWK+vJz65PrXL2Gt6hpkkzWVxs8/mRWjV1c5yCVYEZ/Cmtq9+9xdzvcs8t4hjndgCXUkHHPToOnpS/r8LFaX/rvc6zxBYWM+yOOzt7UJq4tg0EYQ+WyKxBPfBJx6dKXxBBpMdtq9sX0lWtjizjs4ZFmQq4GHYqA3Gc5J56VyV3rF/fRvHdT71ebz2GxRl9u3PA9BU954k1bULNra7uy8T434jVWkx03MAC34k0nt/XZCXn/Wptm/stI0vQDNpNlcRXEDNds8AaSRfNYcHscd+vT0qpYta6f4cvdVtrOC4kN8tvF9riEgjjKs33Txk4Az7VhXF9cXUFvDPJujtkMcQ2gbVJJxx15J61Ppus3+k+YLCfy1lxvRkV1bHQlWBGR60+/9dQ7FvxVawWut/wCiwrAk1vDOYk+6jOgYgegyelZtjCtzqNtBIcJLKqMR2BIFJd3lxf3cl1eStNNIcu7Hk1CCQcjg0R0YPVHUa5dRtcavpsWhW4hs5CsU1vFte3Cvt3OwBLAjg7u5q/p8VpBeeHtKOm2k8OpQI9xLJFukYuzA7X6rgDjHpXOXviXVtQs2tbu8MkTY3jYqmTHTcwGW/Emi08S6vZWItLW8ZIVDBPkUsgPUKxGVz7EULRa/8OD12NPTDBp/hvVroWdrdTQXkMcT3EQk2gh88H1x06flUmkS6ZqfiwTxadEsJsZHltnQeX5qwsSVHYZGR6VzaX1xHYS2SSYt5nWSRNo5Zc4Oevc0Wd9cafOZrSTy5CjRk7QflYEEc+xNHf8ArpYf9fiX9R1W11DT4D9ggtr6KU7nt4VjjePAwCo7g55x0q7rsqXnhfSL02tpBPLLcK5trdItwXZjIUDPU1z0btFIsiY3KQwyARkex61sXHi3V7qzNpPLbNAQw2CyhXGeuMJwfcUCW5taKbG60yxsrGLS/tzhllg1G1YtcsWONkoB28YAGV5FUdPZNO8IXd4dPtZ7mPUEiDXEIk2DY2Rz16d+Kz7TxPq9jaR21rd7Y4gRGTEjNGD12sQWXr2NTad4jk0zw/NaWrMt1JdrNuaNXQoFIIIbOTkg9O1D6/11BdP66M2H06xXxbcSiyi8uPS/t62mD5fmeSG24/u5OcVUnWDUdO0XUXs7aCea+a3lWCIIkqgoQSo4/iIrE/trUf7XOqfa5PtpOTN3PGMY6YxxjpilvNc1HULiCa6uNzW5zCFjVFTnPCgAdfamt0/63/pCe39dv6Z02p/ZLw+J7MabZ266cxe3eCEI6kTBSCR1BBPB6dsVZ0V4dO1jwtZ29hauLuOO4lnaLMpcu3IfqAMDgcetca2rXrSX0hm+a/BFydi/vMsGPbjkA8Yq3ZeKdZ063hgtLwpHA26LMaMU5zgEgkDPbpSjokOWt/n+hs6Ja2sejahqEj6bHcfbRAsmoxNJGq4LEBQrcn1I6CnwW+lf8JZqD2kFtdWy6bJOI9hMQkEWTtDAEDdnFc3Ya3qGmNMbOcKJjmRHjV1Y9iVYEZ564pDrWoNfXF41yzXFzG0UrsAdyMMEcjjjjjp2pdPl+g+t/P8AU1tSnim0HStYSys4bn7TLE6xQKscgTYV3J0P3iOnNW/FetSyWGlwm0sALjTY2ZltIwyZZuFOMqOOgrl3vriTT4rJ5M28UjSIm0cMwAJz17CrTa7qD6UNOeZHtlXaqvCjMoznAcjcBn0NN7W/rYS/r7zrrGz0m0sdHiu30lILu3Et0LmF2uH3MQSjBTtxjjBHI5rgpVVZnWM7lDEKfUVpWniXVrGzW1tbspEmQn7tS0eeu1iMr+BFZfXrQ97gtrGv4atDdasW8i2mSCJ5n+1sREgA+82OSASOO9afii0tv7C06/iOnvPJLLFJJp8RjjcKFI+UqvIyegrntP1G70u6FzYTGKXaVJwCCD1BB4I9jU2oa5qGqQxw304kiiYuiLGqBSQAcBQMdBx0oYLcv+Jf+PHQf+wYv/ox6If+Se3X/YTi/wDRb1STX9Rj0v8As/zo3tgpRVkgRyoPUKxUlevY03Ttav8ASllSymVUlwXSSJJFYjodrAjPPWh9fP8AzuHby/ysavhy38vS7i+kXSokMqwpcakpkUHGSqoFbJxjkjiq/jCyt7HxFJHZpGkTxRS7Ys7AWQE7c8gZJxVa08Q6nZeeLa4VVuH8yRDCjJu9QpGFP0Aqrf6jdapdfab+YzTbVQuQASAMDp7Ch6gtCKCY29xHMqo5jYMFkQMpx2IPBHtXV+K9alksNLhNpYAXGmxszLaRhkyzcKcZUcdBXIVotruoPpQ055ke2Vdqq8KMyjOcByNwGfQ0PVWBaO5pabMl14P1iGa0tCbSGNophboJQTKAfnxuPBx1pdLlisfBlzfixtbm4W/jjV7iESbVKMT1+nQ8VUtPFerWNmLW2lt1h2hSps4W3AcjJKEn8ams/E81lotzDAxS9nvRcM3koYyu0ggqRjqQcYxxR3/rqC6f10NV9OsV8W3EosovLj0v7etpg+X5nkhtuP7uTnFZes+Te+GtP1T7Jb21zJcSwOLeMRrIqhSDtHGRuI4rN/trUf7XOqfa5PtpOTN3PGMY6Yxxjpik1HV77VmjN/P5giBEaqioqA9cKoAH5Uf1/X5Av6+7+maPiX/jx0H/ALBi/wDox62dPitILzw9pR020nh1KBHuJZIt0jF2YHa/VcAcY9K5lNf1GPS/7P8AOje2ClFWSBHKg9QrFSV69jT7TxLq9lYi0tbxkhUME+RSyA9QrEZXPsRT7+v+YunyNPTo49P8OajfW9lb3twl6luDPCJRHGQxyAeMkgDNN8SuukeKle1sbWHbbQk27wK8alolzlWGCck9ec1n6DqKafcTNLqOo2KumN1gAWf2OWXip9S8RvN4hfUdOUIBEkKfaIklJVVC5IYEZOM0v6/Aff8ArqS+JrRZPGX2ayto085YAsMKiNSzRpwAOBkmtrUbG0m0XWEddGEljGrRR2CP5kJDhSGcqN4wSDknmuZ1DxLqmqGM3s8bPG6urx28cbggYHzKoPH1p114q1i9t5obi7DR3C7ZQsKL5gyDyQoycgc9aHtYFun6GRXRaW0On+EbrUhZ21zcteJbg3MQkVE2FjgHjJI61ztXtO1q/wBJWVLCfy0mx5iMiurY6HDAjI9aOgdTa8U3jWfiuO4it4CRZ2+IpohIgzCvG1s5x71T8YxRReJplghigQxQtsiQIoJiUnAHA5JqqfEGpPqn9oyzJLdGMRl5YEcFQABwwIzgDnGaXVPEOpazGE1GWGTBBDLbRo3AwPmVQcY7UAv0MyuvN/ZaRpegGbSbK4iuIGa7Z4A0ki+aw4PY479enpXIVPcX1xdQW8M8m6O2QxxDaBtUknHHXknrR0A3vCE8DeKobIWltPaXU+Ct1bpIwXnGCQcH6VW8M20E2qXUlxAk4tbSa4SFxlXZVyAR3HfHtVXStf1HRc/2bJFES27c1vHIwPsWUkfhSPr2otqceoLOsV1ENqvDCkYxz2UAHqeo5oAtzTLrLaaZtKjs/MuPJe5to/LjlBK8bQMblz1HqM1veIINJjttXti+kq1scWcdnDIsyFXAw7FQG4znJPPSuT1HWb/VWiN9PvEIIjVUVFTPXCqABU154k1bULNra7uy8T434jVWkx03MAC34k0PYFubZv7LSNL0AzaTZXEVxAzXbPAGkkXzWHB7HHfr09KqWLWun+HL3VbazguJDfLbxfa4hII4yrN908ZOAM+1YVxfXF1Bbwzybo7ZDHENoG1SSccdeSetT6brN/pPmCwn8tZcb0ZFdWx0yrAjI9aO/wDXUOxr2Vv9u8UPOukW9nGlv9okgu2ZYYxtH7wjGduSCF56gdKl8UWlt/YWnX8R0955JZYpJNPiMcbhQpHylV5GT0FYsevanFqz6kt2/wBrkBDyMA24EYwQRgjHbGKTUNc1DVIY4b6cSRRMXRFjVApIAOAoGOg46UPYFuUK64ywaVDo1pBottqK3tqs0ytFummZmYbVfkrjAAx+tcjWpaeJdXsbJbW1vGSJAQnyKWjz12sRlfwIo6B1NXTrz+zvA93KLWCZhqaKqXMYkVf3bdVPBPbmr8elae/jaYmC3igGnC9WGQHyVcxBuQMnaCScCuPF9cDT2sRJ/ozyiZk2jlwCAc9ehNTjW9RGpRX63LLcxIsaSKoGFVdoGMYIxxz170df67W/MP6/G/5Gr4lFg+nWc0EunyXu90mOnxNHGy8FTgqo3deg9K5uruo6xfasY/t0wdYgRGioqKueuFUAc/SqVIDtNFNjdaZY2VjFpf25wyywajasWuWLHGyUA7eMADK8is/wbIF8UQafc2dpNFcTbJVuLdJCuM8AsDj8Ko2nifV7G0jtrW72xxAiMmJGaMHrtYgsvXsaj0vxBqOjFjp8sUbM2/e9vHIwPqCykj8KfUXSxnPw7fWpLaYW93FMY0kEbhijqCrYOcEHqKl1DUbjU7gTXZjLhdo8uFIxj6KAO/WqtC0G9TsdW0u00qHW79II2gujGmn7kBCiUeYSvoVUYz2zRbWNq/iLwlH9lhaO4t4jMvljEp8xgSw78DnPpXN3esX99p9rZXVwZLe0BEKbQNufcDJ/HNT2viTVrKxFna3jJCAwUbFLIG6hWIyufYijbYN0aNmYNO8PX2px2drcz/b1t1+0RCRI02s3CnjJwBn2pmsWsFr4wtPssSwJMLecxL91GdVYgegyelZenazf6T5gsJ9iy43oyK6tjoSrAjI9agur25vbx7u7meWeRtzSMeSacdGmEtUzV1mFbnx9ewSEhJdSdGI7AyYre8QQaTHbavbF9JVrY4s47OGRZkKuBh2KgNxnOSeelctqGvajqsapfSxybW3bxBGrk4xkuFDH8TT7zxJq2oWbW13dl4nxvxGqtJjpuYAFvxJqbWikO/vXMuur8N2trH4butQkfTY7j7UkCyajE0kartLEBQrcn1I6CuUq9p2s32k+YLGYIsuN6PGrq2OhKsCMj1qugjanl0qz8axtZ2lteW0vlEIDIkcch2linKnAOcZ4waj8V39m3ii8VdJt0aG+kMjiSTM4DHIb5sDP+zisS41C7utQN9cTNJclg3mNzyOntxgcVHdXM17dzXVy++aZzJI2AMsTknA4pdv67B3Oq8T6jZNpekoujWytLpwMcgllzCN78L82D68561oWNnpNpY6PFdvpKQXduJboXMLtcPuYglGCnbjHGCORzXD3N7cXiW6XEm9beIRRDaBtTJOOOvJPWrtp4l1axs1tbW7KRJkJ+7UtHnrtYjK/gRR39f8AMO3obPhDUWtH1a3hhtZY0sriRXltkZmwvAJIzt4+70rP0nWZW8UW1ybSwDSyRxlBaRhFG4cquMA+45rLsNRutMvBc2UpilAIzgMCCMEEHII9jRd6hcXt79rnZRNwd0UaxgY6YCgAU1o0xPVNG9rmoG/8ZvbT21mkcWospMdsiM48zHzkDLfjUs1lbJfeMAbaJVtg3kjyxiI+eoG304447Vhalrd/q+w6hLHIyEkOsKIxJ6klQCfxzUl74j1bUbP7LeXjSREgsNiguR03MBlse5NSlZWKvrc6rw9psB/sqx1CLRo0vFDPFMrPczK5OGDBSE46DI96yNLaDT/DWrXX2O1uZ4byGOJrmESbQQ+eD9OnT8qo2vivWrKCCK3vNq2+BETEjMgBzgMRnHtnFUBqFyLOe1Ev7m4kWWRdo+ZhnBzjI6mm+tv61EvM6TSF0rWfE8lylpBbxR2LTvDMpEImVOTtXJ2Z5x+lVvEosH06zmgl0+S93ukx0+Jo42XgqcFVG7r0HpWFZXtzp12lzZStDMn3XX8j9R7VNqOsX2rGP7dMHWIERoqKirnrhVAHP0ofkCEur/7Tp9pbfY7aH7OGHnRR7Xmyf4znnFRwswt5iSSFTaB6ZP8A+un3Oq3t5Y2tnczF7ezDCBNoGwE5PIGT+NRLdzKu0Fcemwf4VnUjKS07mNWMpRSiiGiiitDYKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACilUgMCRuAPIPeul1v+yk8NabcWmiwW098sjGRZ5W8vZJt4DMRyB3o6AczRW/b+D7y5itCl5YrLeQ+bbwPKQ8vX5QMYzx3OPeqem6HLqNvcXD3NtZ29uyo8tyxC7mzhRgEk8HtQBmUVpxaDcz6y2nQS20jKpdp0lBiCAbi5b0A/H8aTUNEmsBbyC4t7qC5JWKe3cshYEZHIBBGR1HegDNore1Dwjeael5uu7KeWy5nghlJdFzjdggccj3GeRRY6Vbt4X1G/ZrS6lSNCEE0iy22X2527drZz60dAMGitTTNBm1OxuLwXVrbW9u6JI9w5UAtnHQHPT6808+Gr8a1/ZuYS/l+d53mfuvK27vM3f3cc0AZFFaOp6NNpkUE3n291bz7hHPbOWQleo5AIIyOo71nUAFFdDcx6dd+DXvrfTIrS5hvI4DJHLI29SjE5DMR1A6VnabpD6jFLM13a2cMRCtLcyFQSegAAJJ49KOtg6XM+irWpadPpV/JaXW3zEwco25WBGQQe4IINVkRpJFRAWZiAoHc0LUBKK277wtd2NrcSm6s55LTH2mCGUtJBk4+YYxwTg4JxT7HSrdvC+o37NaXUqRoQgmkWW2y+3O3btbOfWgDBorofDOgWmrx3kl3f20JitpWSN3cMrAAhzhSNo7859qr2GiW8/iCKxk1WxaLchMytJskyQNqnZndz3AHvTtrYV9LmNRWz4h0WDS9Umhs761uV+0PGsMTOXjAOAG3KBntwTReeGLm0s57gXdlcG1x9ohgm3PDk454weSBwTU3urlWs7GNRWnZxWDeHNSkuNn21JIRb5fBwS2/C556DtxWZTEFFT2Vst3dLDJcw2qtn97OW2D67QT+lafiDTUt/E32C0ghtgwiVVjmeRCWVTu3MAec56cUAYtFbmoeFLvT7e7kN3Z3DWT7biKCUs8fzbQSCBxnHTkZ5xWHQAUVpabok2pW81ybi2tLaFgjT3LlV3HoowCSeD2qQ+HL1dSurJ2hWS2t2uS2/KvGF3ZUgc5B4oAyaKuPpssek2+oM8YhuJnhUZO4FQCSeOnzCtHWtKg07QdOkhNpcNM8oa7tppG8zbjgqygLjPbrQBhUUVcXTJm0V9TVo2hScQOoJ3KSuQSMYwcHv2oAp0VrDw3enVotPDQ+c8AuHJfCwoV3HeSOMDk9aj1DQ5tPW2kFxb3VvckrHPbuWQsCMg5AIIyOo70dbAZtFb2oeEbzT0vN13ZTy2XM8EMpLoucbsEDjke4zyKLTwld3drZyi9sYmvlLW0UspV5CGK7QMYzkdzjkc0AYNFalhoNxex3Ess9vYwW7iOSW6cqu85+UYBJPB7Uq+Hb5tdOlHylmVS5kZ/3YQLu37v7u3mgDKorSu9GFrNbKNSsJ4rhtonhlYrHyM7gVDDr6fTNamv8Ahqz02ytJ7bVbJme0SVow8haZiSCyZTGPqR0NHS4dbHM0VvWOlW7eF9Rv2a0upUjQhBNIsttl9udu3a2c+tYNAdAoq5p2mTapJPHbNGHhgefa5ILhRkhcDrjn8KU6Vcf2Xb32UK3M7QxRgne5AGSBjGOQOvWgClRW1f8Ahe7sLW4lNzZzvakC5hglLPBk4+YYx14OCcGpLTwld3drZyi9sYmvlLW0UspV5CGK7QMYzkdzjkc0AYNFb3hjRo9Q1xILtrVmSTYbO5mkiMxweAyKcYI9qo6Zpcmr6oLa38tAWyd8yptXIHBYjJ56daFq7IHojPorqPF2lQaZcNb22nWlrFHcNGk6XvmySAZHzrvO31+6PSqmtaVBp2g6dJCbS4aZ5Q13bTSN5m3HBVlAXGe3WlfS47a2MKituz8K3l7b27i5s4ZrtS1tbTS7ZJhkjIGMckEDJGaq6fo0l+k0j3VrZRQsFeS6kKjceigAEk8HtTEZ1FbEfhm+k199I3QLcLGZAzSfIyhN4IYdiOn9Kjv9AuLKC3nint72G4cxJJauWG8Y+U5AIPIoAy6K2r/wvd2FrcSm5s53tSBcwwSlngycfMMY68HBODWLQAUVpaZokupW09ybq2s7aBlV5rlyF3NnAGASTwe1LFoNzPrLadBLbSMql2nSUGIIBuLlvQD8fxoAzKK0dT0abTIoJvPt7q3n3COe2cshK9RyAQRkdR3rOoAKK27PwreXtvbuLmzhmu1LW1tNLtkmGSMgYxyQQMkZp3hbSItS1mOK5a0ba+37HcyyRGY4PAZFOMfhQHS5hUU6THmNtXaMnAznFIql2CqMsxwB60LUHoJRWzqXhuXTIZjNqFhJPbkCa2jmPmIc4xggA4PXBNS2OlW7eF9Rv2a0upUjQhBNIsttl9udu3a2c+tAGDRWhpukPqMUszXdrZwxEK0tzIVBJ6AAAknj0qHUtOn0q/ktLrb5iYOUbcrAjIIPcEEGgCrRUlvC1zcxQIQGlcIpPTJOKvNoVys2qRF4t2lgmbk4bDhPl455PfHFAGbRW/b+D7y5itCl5YrLeQ+bbwPKQ8vX5QMYzx3OPesAggkEYI6ijrYAoq3pmmz6rei2tdgbaXZ5G2qigZLMewAqfUdDn0+O3mWe3u4Lhisc1s5ZSwxleQCDyOo70AZtFbN54YubSznuBd2VwbXH2iGCbc8OTjnjB5IHBNS2nhK7u7WzlF7YxNfKWtopZSryEMV2gYxnI7nHI5oAwaK1LDQbi9juJZZ7eygt3Eckt05VQ5z8owCSeD2pR4cvzrjaWfKEqp5hlMg8sR7d2/d/dxzmgDKorS1DRJrAW8guLe6guSVint3LIWBGRyAQRkdR3q5qHhG809Lzdd2U8tlzPBDKS6LnG7BA45HuM8igDBorbtPCt5eWtvItxaRTXSl7a1llIlmAyMqMY5IOMkZqhpunNqV+LX7TbWhIJ8y6k8tBgZwT60AU6KCMEjr9KP0oAKKlNu4kkUkDywSx7Usds8iqdyqX+6GPLVDqQSvczdWCV7kNFSRwNIrtlVCYyWOOtKbdxMIxgkjIIPGPWj2kb2uHtIXtcioqSSExqrBldWOAVPf0p8lo8Yf50Yx/eCnkUvaQ01F7WGmu5BRU0ds8iqdyKXPyhjyaiYbWIPY44qlOLdkUpxk7JiUUUVRYUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFACqAWAJ2gnkntXS63/ZT+GtNt7TWoLmexWRTGsEq+Zvk3cFlA4B71zNFHQDqYNZsE13wxcNPiKxgiS4bY3yESMTxjngjpmoND1GO3kvsawth5sgOye18+GZcn7y4bBGeOO56VztFH/B/EP+B+B1sGuaTZ+Mbi4tFjisp7U27SLbZjDlAC/lH+HcPu+lVtd1WKeOxtor63uY4ZWlYWtiLeNCcDjgEnA549K5uihaNAa/iDUluvE2p3WnXD+Rcyvhlyu9CehHBx7GtHRk0mHw/qEFzrtvDNfwxqEMEx8sq4YgkIR27Zrl6KSVlYHq7m1Hd2lv4Z1PTxcLJLJdxNEVRgJFUOCwyOOo4ODzT/DWtLYauZNQlZo5LV7YPInmiIEYXKHqoPb0rCop/wBfhYDoPEepx3Vpa2kF9b3SRu8jC1sRbxqTgccAk8c5HpXP0UUAbulz2Fx4butKvb5bF2uo7hJZIndWAVlI+UEg8g9KtaJdaTZ6fdQvcWSXguMpc3VibhJIgMYVSp2nPPIHWuYooA2/Fuo2uqa79psZBJF5ESbhH5YyqAEbe3I6Dj0rKs7j7LfQXG3d5Mivj1wc1DRQtHcHqrHRa2NCuJtQ1GDUpbie6kMkFssJQxlmyfMJGCAMj5Tyam0ZNJh8P6hBc67bwzX8MahDBMfLKuGIJCEdu2a5eiklZWDd3NvQLqz0/Vb2G6ugLe4tprZblY2KjcMBtuN2PwzVMfZ9M1uB4Lpb2GGVJPNiRlDYIJADAGqFFUnZph0aN7WDpLeIv7Qiv1v7a5u2mmhSJ0dELZIO4AZwSODW3f63pC6Vq9va3diy3UIW2ittO8llHmKdrPtBJwPUjjr0rhqKm2lh31uFFFFMRZsbeC6ufLur2OyjwT5siOwz6YUE/pXQ6/PpUviG31Oy1aG5QPArxrDKrKEVQW+ZQMfL255rlaKadncVjpZdXsmvvFMgnyt+HFsdjfvMzKw7ccAnnFc1RRUpWRTdzd0y5sLnw7caTf3n2FjcrcxzNEzq2FKlSFyR1z0qTTrzSdN8QXCQTznT57V7U3DplgXTBfaO27t1x71z1FP+v0F/X6m9qlxYLpGn6RZXouVimkllufKZUBfaMAEbjgLk8Vb1GPSH8L2dnBr9tLPZtNJtFvMPM3bcAEpwfl71y1FABW/4WvtPhku7HW5TFYXka73CFtrowZTgAn1H41gUU07C3Ojs9egn8UajeagzRQajFNCXVdxiDjCnHcDjj0qPUbuwt9J07TLG7+2CC4e4lnWJkUbtoCgNyeF9O9YFFJaWG9TX8Qakt14m1O6064fyLmV8MuV3oT0I4OPY0uqajFLpuiLZzN59nbsshUFTG/mMwwfoQciseiklZJB1udT4f1u3i0e7sby5t4JpLlbhZry0+0o3ykEEYJB6HOPWoZNYSfxgt5/a0kCRoI47yK1ChcJgfux/D2x6du1c5RT63DodD4lvdPurO0WCa2u75Wcz3Nra+QrKcbQRhcnrzgUmqzafqWj2E6aikdzaWa27WjxPucqx5DAbcYOeTXP0UdAOo0ZNJh8P6hBc67bwzX8MahDBMfLKuGIJCEdu2a5qZEjndI5VlRWIWRQQHHqAefzplFAdDQ0LUf7J120vTykUg8weqHhh+IJrS1vVLGLV9Oj0eQ3FhpoXy2KlfMbfvY4Iz1OPwrnaKd9vIVtztNd8QWlxaai1lqFq3248QQ6Yscu0sGIkkwOmOoJyaw9U1GKXTdEWzmbz7O3ZZCoKmN/MZhg/Qg5FY9FTYZ0PhOWwt9dg1TVdVjtjBNvZJI5HaTjk5VSO/eqEkdpYa1btBfx3kKyK7SxxuoX5uRhgD09qzaKpOzTQrXTXc0tangv/ABPfXEMw+z3F27rKVONpYkHGM9PbNa+ox6Q/hezs4NftpZ7NppNot5h5m7bgAlOD8veuWoqUrKxV7u507TaHq1ppkupajJamythbzW6QlnkCkkFGwVGc9+nvTdAvdKt9LuElktLa9M4ZZb2z+0qYsfdAwQGz3xz61zVFPuI7G417TZPGb363A+zNp5hDiEoN/kbMbQOPm444/CuXs76W1nt2Lu0MM6zeVuO0sCOcdM4GM1WooWjv/XcHqrf12O013xBaXFpqLWWoWrfbjxBDpixy7SwYiSTA6Y6gnJri6KKVrDub3hy+S0iuVOrrp7SFcxz2vnwzAZ+8MNyO3Hc81fg1zSbPxjcXFoscVlPam3aRbbMYcoAX8o/w7h930rkqKYjoPEepx3Vpa2kF9b3SRu8jC1sRbxqTgccAk8c5HpXP0UUAdO02h6taaZLqWoyWpsrYW81ukJZ5ApJBRsFRnPfp71D4SfTbTXLfUb/U47NLabcInikdnGOxVSPzxXPUUdbi6WLeo29vbXW20vo75CNxkjR1AOemGANVUIDqWJAzyV6ikooWg3qdhqmq6dc6PeJd6nDq07qotGNiY7iM5HLyYGeMgjLZqvoyaTD4f1CC5123hmv4Y1CGCY+WVcMQSEI7ds1y9FAHT6JdaRZ2F1C9zZJeC4ylzdWJuEkiAxhVKnac88gdap+LdRtdU137TYyCSLyIk3CPyxlUAI29uR0HHpWJRRuC0JbWf7NeQz43eVIr49cHNdRqOpaTFHrl1Y3zXM2r8JB5LKYQZA7bieDjGOM1yVFAdTqYNZsE13wxcNPiKxgiS4bY3yESMTxjngjpmuanYPcyspyrOSD+NR0Uf8H8Q/4H4Gt4cv7ax1CZb5mjguraW2aRV3GPeuA2O+DSzw6JZT2Iiu5NRAl3XbIhjQpkfKoYBs4zk/Ssiin1uHSx3N/rekLpWr29rd2LLdQhbaK207yWUeYp2s+0EnA9SOOvSue1TUYpdN0RbOZvPs7dlkKgqY38xmGD9CDkVj0Uv6/r7w/r+vuN7TruyvdAudM1O+NnI90t0lw8bSK52lSDtyc85zU2kalpWjeJZjayyPYyWzW4nuIQ/wAzLjeY8cru/h64rm6KP6/QDpNd1WKeOxtor63uY4ZWlYWtiLeNCcDjgEnA549KpeINSW68TandadcP5FzK+GXK70J6EcHHsayKKAO4sfEtmNP01/t1rZzWMAjZJNNWeYlSSGjcjjORwSMGuUsIrS+1MjVL42UL7macQmTB6gbR6mqVFG7uHSwHAJwcj1ooooAs3MyOn7s5MmGfjoQOn55qQXCCOMq6gogGDHlsj3qlRWHsI8qj2Ob6tDlUexL5g+ysufnaQE/QD/69LBIAzCViA0ZQHrioaKt00013NHSi013LG+NWgjDZRG3M2OuSP6Ck81Stwc/NIRj6ZyagopeyX9etxexj/XrcuJJD5kErSY8tANu09R/9eqf1oopwpqD0HCkoNtP+v6YUUUVoahRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAFFFFABRRRQAUUUUAPhjM0yRLgM7BRnpkmtfU/Di6V9oSbWdNknt2KvBE0pcsDggZQD9azLD/AJCNt/11X+YrpPGNxC+tarEmhxRSC6fN4rSljh+uC23n6d6Hsvn+gLd/13OUoruY59YtbbQbXw9bCe2ubQNLCYwYp5CzBxIe/QDkjA9KoaPLeWPhS+u9GVkvhepHI8C7mSLaxwDzgFu/fAo7/wBdbB2/rzOVorstOW9fxhdy6hZQw6mtg80UMaA5lEWVbbyN5+9j17CqfiCW6u/C+mXmrhjfvPMgkkXDvEAuM+oBJwaP6/QN/wCvK5zNat3oLW2ijU4r+zuofNWJlgZ9yMylgDuUDoD0NZVdBaxyTfD+8WFGkZdRiYhRkgeW4zQ9n/XUOv8AXY5+iuz8LFbXwxfXEVzc2V0LtI3mtbUTSKm0nbgkbQT39sVjeLWibxFK0MMsO6OMyLLCImL7BltgJxk8496Ho7AtUYtFWLBIpNStkuMeU0qB8n+HIz+ldX4huddkl1u0mtQ+mW0mFEsYVbZQ+EMfTkjA4zkE8d6HogW5xlFek+Grea3Oi2NxeyiC6jEjWlvYB4ZUcnPmSFuTjqcHFYOl3txpPhTWZbCQwyrewqjgcqMSdD2PvQ9P687AtTlKK67RtQ/tnxNNfC1jF8mnSNGAobzbhY+HC4xuPXHrVS8n1TUP7Jl8Rwr5L3BRbmUbZZFyu4NzkqM8HHc807apCvpc5yivRfEsyGz1u2ne+uY4SBBE+niOK0IcBSr7jxjjpzms2XxBeaJo/hz7MQYGtmaeEgYnXznyrcdMZ/OpTurjOUsLT7ffRW32iC28w4824fZGvGeT2qB12Oy5DYOMg8Guq8D397H4ugSwaaCzubj97FGSVI5wD64zXMTxvFKRKjIc5wwxTDuR1ZvNPnsFtjcBQLmFZ48HPykkDP5GooJ5ba4jnt3aOWNgyOpwVI6EV13inWtan0rTFa8untbjTo2n5JV23Nkn34FD2uC3ONors5fEF5omj+HPsxBga2Zp4SBidfOfKtx0xn86r6Vc3Nt4X1C+0GNobtr9EYwrueOEqxC5xkDPGe+KO/8AXWwdv68zlKK7iWSK3+IK21yqxJqVpHb3ihdoV5Yl3Ejsd5B+tUNUsZbKDRvDnyJcvKZ5w/3fMkbaoP0VR+dAHLVZGnznSTqIC/Z1mEBOedxXd0+grvdUR59B16C8vLi7+yIuyN9PEEUDiRR+7O49sjGBkVm2Wv66PALNZ312ZIL5Il8tiSkflnC8dBkUr6P5fmHX+uxxdFdp4YkEPhq/vEu7m0vDeIklxa2wmlCFScYJG0E9++MVkeKXU+KGe0glhkKxsyyQCNmk2jLbOcZPOPen1sHS5hUVoa5PqVzrE0uuI6XrY8xZIvLPQY+XAxxis+gAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAVWKMGUlWByCDyDV+48QazdwPBdatfTROMNHJcuysPcE81n0UAWYdSvre1e2t724igk+/EkrKrfUA4NNtL67sJDJY3U1s5GC0MhQkemRUFFAEouZxdfaRNIJ927zd53Z9c9c066vbq+m82+uZrmTGN80hc49MmoKKACrFnqN7p0jPp95cWrsMM0ErISPwNV6KALUGp39tdSXNte3EM8mS8scrKz55OSDk1XkkeaRpJnaR2OWZjkk+pNNooAKsz6lfXNslvc3txNBH9yKSVmVfoCcCq1FAFyHV9St7dYLfULqKFG3LGk7KqnOcgA9c1X+0ziF4fOk8qRgzpuO1mHQkdzyfzqOigB0UskMqyQu0cinKuhwQfUGpbu9ur+US31zNcyAYDzSFzj0yagooAtT6nf3Vslvc3txNBH9yKSVmVfoCcCoZJ5pY40lld0iXbGrMSEGc4HoMnNR0UAXLPV9S06Nk0/ULq1RjllgnZAT6nBqK8v7vUJhLf3U91IF2h55C5A9MntUFFABVpdTv1sDZLfXK2jdbcTN5Z5z93OOtVaKAJJJ5pY40lld0iXbGrMSEGc4HoMnNPtL67sJDJY3U1s5GC0MhQkemRUFFAD2lkeYyvIzSFtxcsSxPrn1p1zdXF5cNcXc8s8zY3SSuWY46cnmoqKALk2sancxmO41G7lQrsKyTswK5BxgnpkDj2plnqV9pzM2n3txalxhjBKybvrg1WooAsWuoXljM0tldz28jDDPFIUY/UionmkkmM0kjtKx3F2YlifXNMooAluLme7nae7mknlb70krlmP1JqKiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAVEaSRUjUu7EBVUZJPpXT6iL3RPBdnYSpJYz3U8rXEDrseRAE2FgecZ3YrlwSDkcGuhnb+0PA9rtuYpJ7K4maZJZgJAjBNu0E5YZB6ZoewLdFGzuLFPDmpQzohvJJITbsY8sAC2/DY47fWtrw9b3TeErqfS9Jh1G8F6iHfZLcFUKMTwQcDOK5Ktiy1w2Hh9rW2aWO7F9HcpIv3QFUj1znJHan3+X6C6/12NLVNCgvPFRtbcw2IS0W4vQg3JbME3SAAeh7epxWbf6EkMVncabd/bbe8kMKM0RiZZBjKlcn+8Oc1fg8S2dn4tm1WxiuIILuJllWMhXiZ1+Yoc44bkZx+FQa34h+2yWZtr7UrxrZzJ5l+4+9kYwoJx09eaS6X/rUf9fgSXfha0gh1PyNXE9xpiZniFuVBbeFIVieQCTzjt05punWlmfCWq3EM0c1ykUZljns8mIGQAGOTfweefl9q3L0AaFrupXGjT6Y+oQI3mTzblldpFbEYwDg8t3rF0q+8P2miXlrdTal519EiSmO2jKoVcNwTIM9O4FLXZj038/8ijpmjwXWnTahqN99itIpFhDLCZWdyCcBcjsM5zVqPwtu1640+W+jSOK1a6W5EZKumwODjqMg/h70yy1HSxpl1pV/9s+yNci4gmhRfMBAK4ZSccg9jwfWp28SWz65eXXkypbyae1lAnDMB5YRS3T0ycU35f1p/mJef9a/5FO/0KOK3sbjS7z7bBeyNChaIxMsgIypGT/eHOas3/hmC2t777JqYurnTsfaofIKADcFJVifmwSB0FVV1mOLQ9OtYkb7RZ3j3BLAbSCEwOuf4TWvrvi2LU7K7WK+1h2ujn7NNKohi5yRwSWHYcCh+QLzMSzuLFPDmpQzohvJJITbsY8sAC2/DY47fWq+mW1pd3yxahfCwgIJM5iMmDjgYHPNVKt6YdOF8v8AbAuTa4O4WpXfnHH3uOtAFQ8E4OR60UHGTjp2zRQBp6jcWMui6TFaoguYo5BclY8EkuSuTjn5cetWYvDTz32jwwXO+LVIw4lKY8rBIcEZ524J7Z9qw66TS/ElvZeGZ7OaKV72MSLZyqBtjEoCvk5yOAcYHU0d2HWxUsdEtri0ub681A21jDMIEkWAyPKxyRhcjHAyefzqeLwsW1640+a+SOOK1a6W4CEq6bN4OOoyD+HvT/DviRdL0y4sJbm+s1llWZZ7EjeCAQVIJGQeO/akHiKA65qF5K15MlxZSW0bTuJJCWTaCx44z6dPeh/193+YL+vv/wAirf6FHFb2Nxpd59tgvZGhQtEYmWQEZUjJ/vDnNWb/AMMwW1vffZNTF1c6dj7VD5BQAbgpKsT82CQOgqqusxxaHp1rEjfaLO8e4JYDaQQmB1z/AAmtfXfFsWp2V2sV9rDtdHP2aaVRDFzkjgksOw4FD8gXmNt9K8Pv4M+1T6hPHL9rVXmFluZCYyTGBvGR3zx06Vlafo1tc2Nxf31+bSyilEKuIDI8jkEgBcjHAyeak03UdNOgzaXq32qNGuVuEltkVzkKVIIYj165pNO1HTho9xpWqi6Fu9wtxFLbqpdWAK4KkgYIPrxQ93/Xb/ggtl/XcqatpjaPqhtnkWdNqyJIowJEYBlOD04PSn+IZ7K58Q3k2lKiWbvmIRpsUDA6LgYo17U49V1QzwRtFAkaQxK5ywRFCjPvxms2gAorW1rTbXTLfTUieVrua2We5DEbU3cqoGMj5cE5z1rJoA0/D1xY22tRy6oiPbCOQMJI94yUYLxg/wAWKu+DIPtGr3IFpHdyrZTPFFJCJQzhfl+Ug5Oa5+tPQtTi0u4upJhIfOs5YE8sDIZlwD1HFHf0DsbOt2E0uiWT6hpkOnatNdmKOKOAQGWLA+ZkGMfNxnAzVO/8MwW9vf8A2PVFurrTsfaofIKADcFJVifmwSB0FYsF1JBeRXOd8kbq43HOSDmugv8AXdKMWqzabDeC71XiVZ9uyEFw7bSDluRgZA4of9f1+YLchh8OWi6RaXuo6o1obxWaLFq0kagMV+ZweDkdADUvhTTdIvUvzqVy4ljtJmEYtt4QBR+8B3DJHpj8al8P+ItP0eCBmuNVRkyZrONla3uPqCRgEcHg1l6HqltYalcvdxSC2uoJYHEABZA46gHg49KHu/mC6fIgNtpY1QRDUZzZYybj7L82cdNm/wBferfi2BbbxFLFGtuFWOIr9ng8lSCinOzJweeeetVQmjf2mym4vhY7flcQJ5uf93fjH41e8T3+kard/bNNe+85ljRkuIUVQqoFyCHJzwOMUdA6lTUbixl0XSYrVEFzFHILkrHgklyVycc/Lj1qCC2s5NMuZ5r8Q3MRUQ23lM3nAnk7hwMe9U6uQHTf7MuftIuvt2V+zmMr5YGfm3Z56dMUdwKdKpwwJ6ZpKKadncDb1F9Lv/GjG22Q6ZNcoMxp5arGSASBgY710WqaVL9j1tdR0S1sLKzjLWVzFCEZjvAQB/8AloGB5Jz+FcFWtdatF/wjlrpVkJAN5munfA8x+igcn5VH6k8VP2bf1/SBbnTW1q0ujaRDpQ0H7RPakmK6t43mmk3twCVPOMAZI9qzNAspF0KW5s9PtrzUJbz7Oi3SKyoixl2wG4zx39OKraPqWh6fJZ38lteC/szu8uMqYpnBypJJyvbIAPSorHVbCXS7jTtaW5WKS5F0ktqFLK+CCCrEAgg+vGKb3f8AXUFsv66DfE1tb22sRPbQrDHcW0NwYk+6hdASB7ZzUWvXdpJ4lubrRtsVt5oaDyk2BcY5AwMc0zXdSj1TUvNt4migjiSCFXOW2IoUEn14zVCNDLIsaY3MQoyQBk+56UddPMOmp03iS3vNU07TdYSCW5Q2Si7u0TI8wOwO8jocbRz7Vy9dB4mmEUWl2EVykhtrJY50glDxq+9iRkHBOCM4rn6Ort5h0VwooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooA/9k=)

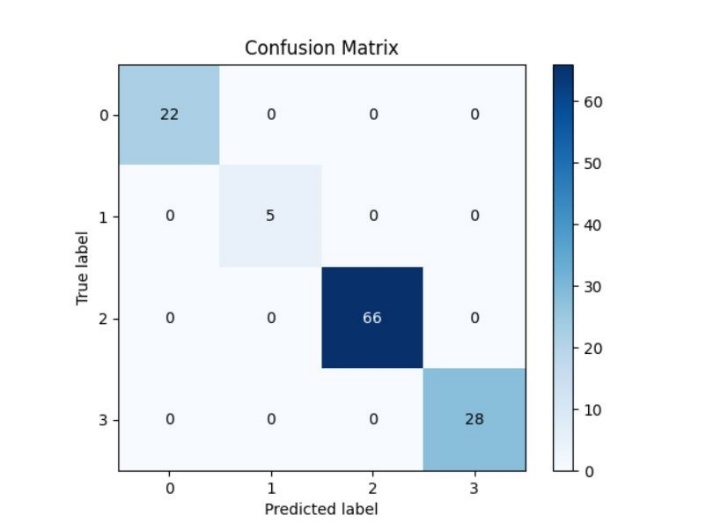
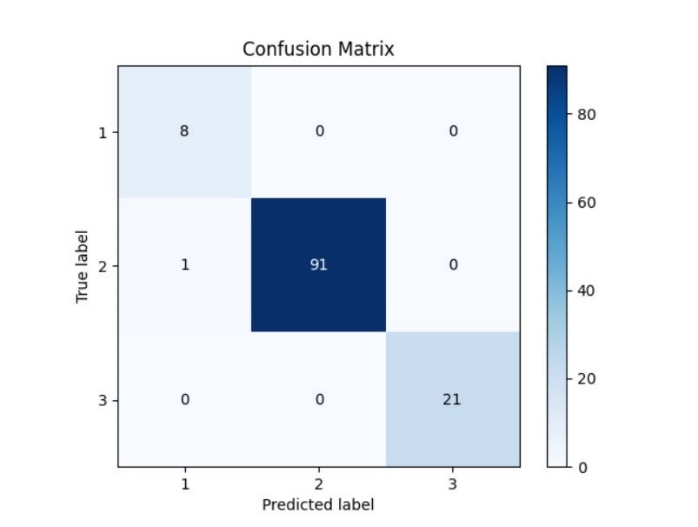
**Valutazione prestazioni**

**K-fold-cross-validation:** metodologia utilizzata per calcolare l’accuratezza media di ogni predizione, attraverso 10 fold, 9 usati per il training set e 1 per il test set.

**Metriche:** utilizzo di un report per calcolare le metriche di precision, recall e f1-score delle predizioni effettuate tramite i classificatori.



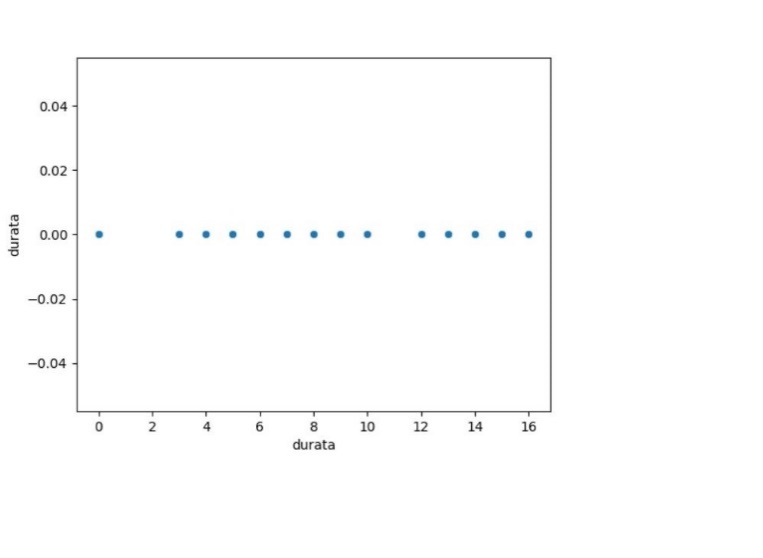
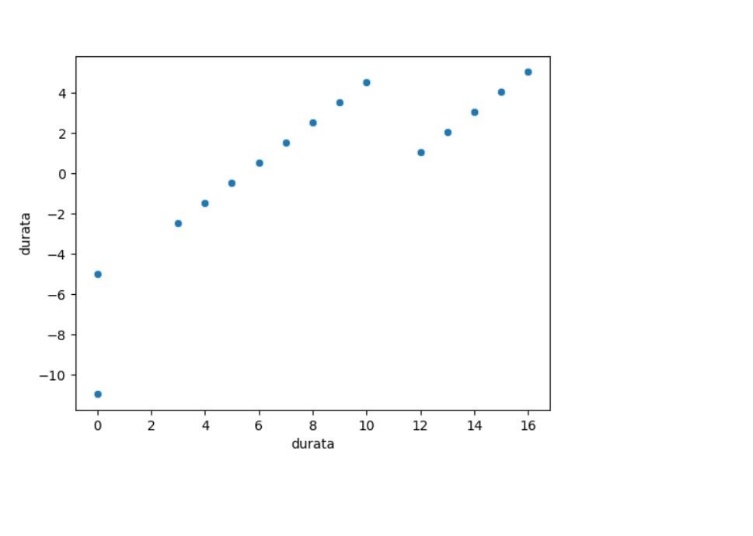
**Matrice di confusione:** utilizzata per verificare la correttezza dei risultati ottenuti dalle predizioni dei classificatori



![Immagine che contiene testo, dispositivo, metro, calibro

Descrizione generata automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RD0RXhpZgAATU0AKgAAAAgABAE7AAIAAAAOAAAISodpAAQAAAABAAAIWJydAAEAAAAcAAAQ0OocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAE1pa2kgUml2aWVsbG8AAAWQAwACAAAAFAAAEKaQBAACAAAAFAAAELqSkQACAAAAAzAzAACSkgACAAAAAzAzAADqHAAHAAAIDAAACJoAAAAAHOoAAAAIAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAyMDIyOjA2OjE3IDEzOjA0OjE2ADIwMjI6MDY6MTcgMTM6MDQ6MTYAAABNAGkAawBpACAAUgBpAHYAaQBlAGwAbABvAAAA/+ELIGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDYtMTdUMTM6MDQ6MTYuMDMwPC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPk1pa2kgUml2aWVsbG88L3JkZjpsaT48L3JkZjpTZXE+DQoJCQk8L2RjOmNyZWF0b3I+PC9yZGY6RGVzY3JpcHRpb24+PC9yZGY6UkRGPjwveDp4bXBtZXRhPg0KICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICA8P3hwYWNrZXQgZW5kPSd3Jz8+/9sAQwAHBQUGBQQHBgUGCAcHCAoRCwoJCQoVDxAMERgVGhkYFRgXGx4nIRsdJR0XGCIuIiUoKSssKxogLzMvKjInKisq/9sAQwEHCAgKCQoUCwsUKhwYHCoqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioq/8AAEQgANwC4AwEiAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8A8eoor1KXRtJGtTXK2lphoHtRb+Uu1ZQhk37f9wDn1ND0Vw6nltFdh4KsLKa0uX1KCKUXsy6fbtIgOx3VjuGehGF596g8J2bmPWgtrZzXdvAvli9SMojeYoP+s+UcZo62A5aitXXzdi9RL6CwhkVMgWKxBSCe/l8Z/WsodRngULUAorrdR0nw9F4Y064j1GdZJDPtlFjzMQRgN+8+XHTPPWs3T9AtptNgvNS1L7Et1K0VuqwGUsVxktgjaMkDufajcDEordsvDEs2rajZXk/kDTlZp2iiMrHDBflUYzyfbiqs1jpkOpxxf2q72jpuadbU74zz8pQsOcjs3egDMorpvGOm6PYanMmnXUgmAj/0b7NtQAoDnfuP1xjvXM0AFFddptubPw3ZXNnpdneyTedPdNdRq+2KNlXC5PHXtzzWJ4jsodO8S39pbArDFOyoCc4HYUPRgZlFavhiyg1HxNZW12u+F3JdM43AAnH44rW1S3a68MT3d9plpY3EMkEkDWsapvilDYBCnn7o680PRXDrY5SiiigAooooAKKKKACiiigArpT4jtP+E2l1jy5vs7xugXaN+TCU6Zx19+lc1RQB0Vr4qOl6Jp9npsERlhleed7i3SQFyRtKE5IwoHPBqZdc0eXUteMy3kNpqijZ5USM6HeHOQWAxkEda5eigC3qC6csqf2VLdSx4+Y3MSoQfbazVUoooA3F1DTLrw1bWGoG7iuLNpWhaCNXR9+DhssCOR2zV7RfFaWWhw6fPeanZfZ5XdWsGX96GwcNkjBBHB569K5WigDZtNVtjrl1e3k2owmUs0VxbTAzRknqScbuODyKXxLrMOsXNs0HnymCARPcXIAlmOSctjPrjqelYtFHRIOtzc8QahpmryfboDdx30ixrJE8a+UNqBSQwbJ6DtWHRRQBvWep6TPpFnZa0l4DYyu8TWoU+YrEEq24jHI6jPXpVafU7XUvFT6lqtu5tZrjzJYYm+bZnoDx2+lZVFHW4dLGrZapb6X4oXUbCBzaxTs0cMjfN5ZyME+uDVi91LSoNEm07RUvGFzMkssl0FG0KDtUBSc/ePPH0rCoo6WDrcKKKKACiiigAooooAKKKKACuvfwE6avLafb/wBwlobgT+T95skbMbuuQec9BmuQr0h9WuW8dT6QSv2ZfMmHHzZ+ynjPpkk49TQ9g6nJeHvDb6/FfOtwIPs0W5AU3ea5BITqMZ2nnmodF0i31KG+nvbx7SCziWRmSDzS2WC4xuHc10Wg3Fjonh7S7i/u5raS41A3YEUAk3pH8gB+YYGS3rUul6fdafqviuy0y1W6mjjHkwtCJQ6mVSPlIIPynNPr/X9f8MHT5/r/AF95x2oQ2EMqDTbyW7QjLNLb+UQfTG5s1UAycDk1q6/DqcV6jaxp62MrJ8qJbLCGAPXaoA/GsqkgZuXPg/WrbS7e9bTrw+bvLxi2fMIXHLccA9fwrNttK1C9QPZ2NzcKSQGihZgcYz0HbI/Ouimg1PU/A+myaeJ7gWr3H2oxsT5YypG72xmq7XlzaeALD7LPJCTqMzExsVyQiY6UeodjBgtLm5uRb21vLNMSQIo0LN+Q5pWsLtL0Wb2s63RYKIDGQ5J6Db1zXUaC8+vX+s37tcfaZUUvaacyxyThm+bBbOAMAnGc5p3i2znuLvQoLGC5a5az2LG8ollyJH4LKBkj9OnajsHc5/WNJOkG1jlacTywiSWKe2eExMSRt+b7w46jioZNJ1GG3eebT7qOFMbpGhYKuRkZOMDgj866PxdouqxabpNzdWVwsdvYJHPI6nCN5jcE+vI/OtOa6nfxteWrzSG3OkMpiLHbj7KG6fXmjv5XDqvl+h59WlpGkpqCXU91dC0tLRA80uwueThQFGMkn3FZtdL4U3zafqtpaxRXF3IIJYbaUAibZJllwevHbuM00JmXq+lLprW8kFyLq1uovNhmCFCRkggqehBBrOro/Fm6G30q0uEjhuoYHaaCPGIS8rMFwOnBHHaszVtGudGkt0u2iJuIFnTy33YVumfepRRpv4UiUvaDU1Oqx2/ntaeSduAm8rvz97bzjGPeucr0mTzf7Yn1Y29sNKa3eddQ43MWtvLEe7P97+HGc15tTe9hLYKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooA//2Q==)**MAE(Mean Absolute Error):** utilizzato per valutare gli errori di predizione del regressore.

**Diagramma cartesiano:** utilizzato per visualizzare graficamente la distribuzione degli errori riguardante la predizione del regressore.(Nell’immagine sono rappresentati due diagrammi cartesiani, il primo riguardante il Random Forest Regressor, il secondo il Decision Tree Regresso)



[Torna all’inizio](#_top)

1. **Implementazioni future**

Nelle prossime versioni della nostra applicazione, alcune features che potrebbero essere implementate sono:

1)Inserimento GUI;

2)Inserimento prove incastranti;

3)Inserimento riduzione pena;

4)Inserimento paese di appartenenza dell’imputato;

5)Inserimento paese di appartenenza del carcere a cui è assegnato un imputato;

6)Estensione delle tipologie dei reati e pene annesse.

[Torna all’inizio](#_top)

1. **Processo di sviluppo e organizzazione del lavoro**

Il progetto è stato sviluppato a partire dalla fine di Maggio 2022 fino a circa metà Giugno 2022, completamente in presenza.

Fortunatamente essendo coinquilini abbiamo potuto lavorare costantemente e contemporaneamente, senza dover ricorrere a piattaforme di comunicazione, potendo così avere un confronto immediato e anche una maggior efficienza nello sviluppo dell’applicazione.

[Torna all’inizio](#_top)

1. **Conclusioni**

Come anticipato, riteniamo che il nostro progetto sia stata una vera e propria sfida e, nonostante le varie difficoltà, riteniamo di essere riusciti a gestire al meglio le varie situazioni e a raggiungere gli obiettivi prefissati, traendo dunque il meglio da questa esperienza formativa.

Ringraziamo per l’attenzione.

Il gruppo, **VINMIC**

[Torna all’inizio](#_top)