FUTURE SCOPE

If we are given more time, then we can do below extensions in the project :

- Here basically, our implementation is limited by the availability of the features given in the dataset. So, if we have more time then,
    - We will label each and every book with the genres associated with it, and find the similarity based on the genre and consider it in the rank calculation.
    - We will create the dataset of read books by each user so it will not be recommended to the user and when we don't have sufficient rewarded books for that user from the previous state history, then instead of starting with the random and serendipity factors, we can focus on the similar books which are read by the user and serendipity factor.
    - We will provide the short description or content of the book, and in content based similarity, we will find the similarity based on content or description and consider it in the rank calculation.
    - We will create the dataset of 'want to read' books by each user so we can consider those books and the similar books to those books at the time of recommendation
- Right now we have considered the last three state, but if we have more time, then we will consider more states and the weightage of consideration of the old states will be less compared to the most recent states.
- Here we have computed the single field of reward value for different actions and single learning rate for that reward, but we can extend it up to different fields for rewards based on different actions and different learning rates for those different rewards
- Here for the cold start problem, if new book arrived, then instead of simply recommend it under new arrived (serendipity factor), we can consider the genre, author, title and content or description of the book to determine its similarity with books in the state table and recommend it based on the similarity value.
- Here for the cold start problem, if new user comes, then we can predict the preference of the user by considering the demographics of the user and recommend the books belonging to that genre with highest popularity.
- Right now based on the initial values of the parameters such as weight given to the each factor in rank computation, learning rate and rewards we get the appropriate result, but if we have more time then we can implement the functionality to predict the specific preference of the user from its state history and when the system has appropriate confidence in that prediction, then it will make small changes in the values of this parameters and provide recommendation and if the predicted preference is not correct then system will restore the values of these parameters to the initial values.