**Zappos “Suggestion” application report**

**Bugs:**

1. The link to the product from which the user can view the product on zappos.com is not visible.
2. There is no scroll bar on the GUI, so if there are more products, the user will not be able to see them, but the products are there.
3. The combination suggestions on the basis of number of items and budget are visible on the console and not on the application GUI.
4. The data of “budget” and “number of items” is not checked whether it is a number or not before submitting request for suggestions of combination of items. The fields are only checked for whether they are empty or not.

**Improvements and future work:**

1. The search can be made more efficient by **searching only those items which are less than the specified budget** of the user and, in the product domain specified. This can be done **using the filter attribute** in the search API of zappos. This will make the application more robust and fast.
2. The look and feel of the application’s GUI can be made better.
3. Suggestions of combinations of the items can be made to **display on the application GUI rather than the console.**
4. **More control** can be **given to the user** in terms of accessing different products and knowing more about them in the application.
5. The suggestions of combinations can be sorted in a way that the top suggestions should be closer to the mentioned budget and the **lower the position of the suggestion, the farther their sum is from the specified budget**
6. The application can also be made to search for all possible products without first searching products based on the search term and then suggesting combinations. You can put “\*” as a search term value instead of a search term.
7. The application **can be scaled** to much higher number of items with minor tweaks.
8. The above mentioned bugs can be corrected.

**Performance of “suggestMe” algorithm and application:**

1. The implementation of this algorithm is a mixture of the solutions of “knapsack problem” and “linear subsequence”.
2. The implementation does not use recursion which is a boost to the performance as it tends to lag a bit when the number of items to compute becomes too large.
3. There is a scope of introducing dynamic programming approach which can further make the application more efficient for problems having large data sets, which is yet to be explored.
4. The application lags on my machine. It takes time to display products that’s been searched and takes time to take inputs in the text fields.

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