Algorithms and Problem Solving Lab

PROJECT

(15B17CI471)

HAPPINESS CHECK

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PROBLEM STATEMENT

- We ask the user 10 questions, then we provide him with 6 options to answer each question. the cost of each factor is also associated with it. this will help us to calculate happiness of a person.

- happiness = happiness + (factor.choice)(1) using the concept of 0/1 knapsack (dynamic programming) which is : " given a set of advices , each with a effective weight and a time period , determine the number of each advice to include in a collection so that effective weight is less than or equal to a given counter percentage of happiness and the total time period is as large as possible.

- Here, we try to achieve maximum satisfaction and happiness for a person as

- We calculate the percentage of happiness, as given in 1 and suggest the measures to increase the amount of happiness as given in 2 explain it in detail using example.

REASON TO CHOOSE THE TOPIC

A lot of us today suffer internally with anxiety, feeling helpless, feeling of sadness for no particular reason. Many people do not talk about their suffering with others as they feel they might be misunderstood. The fear of being labelled or judged stops them by discussing with others, hence, the thought of developing **"HappinessCheck"** came up where a person can try to understand his feelings and push him/her out of this mental state for achieving happy well being by simple use of an application sitting comfortably in his home. Here, We ask our users some questions relating to their daily life and involving activities. To answer these questions users are given some options . The options hold the relevance it has for the user . Each option has some cost associated with it which defines its importance. Then, we find out the count of the happiness the person holds by taking into account the option chosen with its factor. Concept of 0/1 knapsack, a dynamic programming is used here. These advices have certain weight attached to them. This ensures effectiveness of the advice and tells the user the time period till which that advice has to be followed. Knapsack is best suited for our problem as it serves the purpose of providing most effective solution to the user by using maximum weightage as well as we maximise the time period so that we are able to support the person as long as possible.

OBJECTIVE AND SCOPE OF THE PROJECT

The scope of this project is limitless with world rushing towards hectic schedules and monotonous lifestyle. A more personalized solution to detect happiness quo- tient by tracking user's social media interaction, profession, age, and numerous other factors. While psychologists are accessible to people in urban areas, there are not many in rural and remote areas. Through **'HAPPINESS CHECK**' we can connect psychologists from around the world directly to people. Also mental health is still considered a stigma in society, spreading awareness is another aspect of the project. Machine learning and data analysis can help us spot such people who need help, we can then concentrate our solution on them so that depression just can't be cured but also prevented.

METHODOLOGY

We have used 0/1 Knapsack (Dynamic Programming) to build our HappinessCheck program.

- We created a class named HappinessCheck and created some arrays and functions:
    1. questions[ ]: we have provided 10 questions to the user.
    2. options[ ]: user will be provided options for each questions.
    3. factor[ ] : Each factor will be associated with the option provided by the user.
    4. void display( ) : It will display questions along with the options for the user to choose. For each choice happiness score will be added by the factor[choice-1].
    5. int result( ) : It will simply display our happiness score.

- We have created a KnapSack Function with some parameters:
    1. We have created a 2D DP matrix named K[n+1][W+1].
    2. W is the total effective sadness level, val[] is the total time that will be required, wt[] is the effectiveness associated with each advice.
    3. 2D matrix is filled with the help of knapsack conditions and result will obtained in the last row and last column.

4. Then we will traverse back the DP array to find the wt[] which has to be included in the vector<int> v.

✞ Main ()

1. We take the name of user as an input and provide them with various questions and options, after getting the result as which wt[] we needs to include, we pass the solutions associated with the weights from string[] str.

HARDWARE AND SOFTWARE REQUIREMENTS

- PC
- C++ IDE (Integrated Development Environments)

CONTRIBUTION

- HappinessCheck will help people to measure their Happiness Level.
- It will help user to understand its mental state and provide concrete life skills in order to improve their happiness level.

OUTPUTS

```
--------------------------------ENTER YOUR NAME : Salman
--------------------HELLO Salman LET US CHECK YOUR HAPPINESS LEVEL-------------------------
I feel luck plays an important role in happiness
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
6

I rarely wake up feeling rested
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
6

I feel that life is very rewarding
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
2

I am always committed and involved
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
5

There is not a gap between what I would like to do and what I have done
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
5

I feel that I am not especially in control of my life
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
3

I find it easy to make decisions
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
4

I have a particular sense of meaning and purpose in my life
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
5

I am well satisfied about everything in my life
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
3

I think that my happiness is directly linked to the amount of material possessions and wealth that I have
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
2

Your happiness score is 60 %
---------------------------------- HERE ARE SOME ADVICES---------------------------------
** Excercise daily
Aim for at least 30 minutes of exercise per day
A 10-minute walk can improve your mood for two hours
**********************************************************************************************
** Do things that makes you feel good
```

```
I am well satisfied about everything in my life
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
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I think that my happiness is directly linked to the amount of material possessions and wealth that I have
1.strongly disagree     2. moderately disagree  3.slightly disagree     4.slightly agree        5.moderately agree      6.strongly agree
2

Your happiness score is 60 %
---------------------------------- HERE ARE SOME ADVICES---------------------------------
** Excercise daily
Aim for at least 30 minutes of exercise per day
A 10-minute walk can improve your mood for two hours
**********************************************************************************************
** Do things that makes you feel good
Do this once a week for next 2 months.
Discover yourself and your passion and take out time for your favourite thing
**********************************************************************************************
** Regular sleep balance needed
7-8 hours required for being both mentally and physically healthy.
Avoid junk food.
**********************************************************************************************
---------------------------- HOPE YOUR LEVEL OF HAPPINESS WILL INCREASE SOON  ----------------------------------------------

Process returned 0 (0x0)   execution time : 26.880 s
Press any key to continue.
```