Budapest University of Technology and Economics

WEB-based Laboratory

Written report

Beerculator

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1 Introduction

To create an alcohol-conscious society there should be tools to inform the general crowd about the amounts of alcohol a person can ingest and the effects it will probably have on him/her. Beerculator is an interactive tool which calculates the blood-alcohol levels based on the beers that a person has had in a certain amount of time.

2 Requirement analysis

Bob (made-up client for the project) consumes beers and feels the effects of alcohol in his bloodstream but does not know when to stop or if he is on a safe-to-drink amount of alcohol. Bob requires a simple interactive tool that he can use on the go to check his alcohol level without being too specific about the details.

Bob should not be the only one to access this tool. He does not need the tool to store the information about previous alcohol-level calculations, but he wants to be able to interact with the tool so it can dynamically calculate his alcohol-level. He also wants to know how long it is going to take for his body to remove all this alcohol.

3 Specification

3.1 Needed informations

In order to calculate the user's blood alcohol concentration (BAC), we need a few informations about him and about his drinking. More precisely, we need the elements listed below :

- Gender (M/F) ;
- Weight ;
- Number of hours since the drinking began ;
- Amount of alcohol.

3.2 BAC calculation formula

To calculate the blood alcohol concentration, we will use the Widmark formula, which is the following:

$$BAC = A \div (R \times M) \tag{1}$$

In this formula, we have :

- BAC : Blood Alcohol Concentration ;
- A : Alcohol ingested, in grams ;
- R : Ratio (0.70 for men, 0.55 for women) ;
- M : Body weight, in kilograms.

To obtain the value of A, we use this formula :

$$A = (V \times P \times 0.8) \div 100 \tag{2}$$

In this formula, we have :

- V : Volume of alcohol in c.c ;
- P : Alcohol degree, in percentage.

3.3 Elimination of alcohol

The median rate of decrease in BAC is considered to be 15 milligrams per cent (mg%) per hour. In our calculation we used the approximations listed in TABLE 3.3.

BAC value	**Hours until sober**
0.016	1
0.05	3.75
0.08	5
0.10	6.25
0.16	10
0.20	12.5
0.24	15

4 Task solving

5 Selected technologies

Web based: JSP/Servlet/etc...
Based on Java
Database management for different drinks
Graphical user interface

6 Design

Interactive text boxes to enter the different parameters
List to pick the kind of alcohol and predefined amount

7 Implementation

8 Testing instructions

9 Team management

10 Conclusion

11 Further plans

The user can create new drinks
Register form for users