

CS_191 Functional Programming I

Coursework 1

Due date: Thursday, 25 February 2010

Pizzeria Alfredo sells pizzas of varying sizes and numbers of toppings. They would like to have a program that computes the selling price of a pizza.

The price of a pizza is calculated as follows: There is a fixed ground price of £ 5. In addition to that the pizza base costs £ 0.003 per cm² and each topping costs £ 0.002 per cm².

Students only pay 80% of the full price.

Write a Haskell program that asks the user to enter diameter (cm) and number of toppings of a pizza and whether the customer is a student. The program should calculate the total price, rounded to two decimal places, and print it at the terminal. Then the user should be asked whether they want to enter another pizza in which case the process should be repeated, otherwise the program should terminate.

Voluntary (not assessed): Upgrade your program so that the calculated prices are recorded in a file together with the time when the calculation was performed. In order to get the time import the library `Data.Time.LocalTime` and use `getZonedTime :: IO ZonedTime` to get the time and the function `show :: ZonedTime -> String` to transform the time into a string. Before the program terminates all recorded pizza sales should be printed on the terminal.

Please see overleaf for assessment criteria and instructions on how to do and submit your coursework.

Assessment

Full marks (100) will be awarded if

- (a) the program compiles and has the required functionality (60 marks);
- (b) the functional part and the IO-part are clearly separated (20 marks);
- (c) the program is easy to read and maintain (use comments and type synonyms, and declare the parameters of the program – such as, for example, the ground price– at the beginning so that they can be changed easily) (10 marks);
- (d) at least three tests are carried out and included as comments in the script (10 marks).

Instructions for doing and submitting the coursework

1. It is recommended that coursework is done and submitted in pairs. Solutions by single students are allowed, but not by three or more students.
2. The lab classes on 15, 16, 22, 23, February are there to help you with the coursework. Attendance is compulsory, unless you have already submitted your coursework. Coursework will only be accepted if at least one of the lab classes at the above dates has been attended.
3. The beginning of your coursework must contain the following information:

```
-- CS-191 Functional Programming I -- Coursework 1  
-- Authors: name(s) and student number(s)  
-- Submission date:
```
4. Print your coursework, attach a signed submission form (available at the students office) and it in the wooden box on the second floor.
5. Late submissions will be penalised by taking marks off.