

Instruction: Write a complete C++ program using **pointer concepts** to calculate the total flooring cost of a house which has several rooms. Only one type of flooring is provided which in this case is linoleum flooring. Linoleums (sort of tiles) come with several colors, dimensions, and prices. Therefore, the program should provide a feature that allows the customer to choose the type of linoleum he or she prefers. Each linoleum has a code representing its color, dimension and price. For example the code **W08100150** represents that the linoleum's

- color is white (i.e., taken from the first character)
- width is 8 inches (i.e., taken from the second and third characters)
- length is 10 inches (i.e., taken from the fourth and fifth characters)
- price is RM 1.50 (i.e., taken from the last four characters)

For convenience, you are provided the structure chart that represents how your program should work (Figure C1).

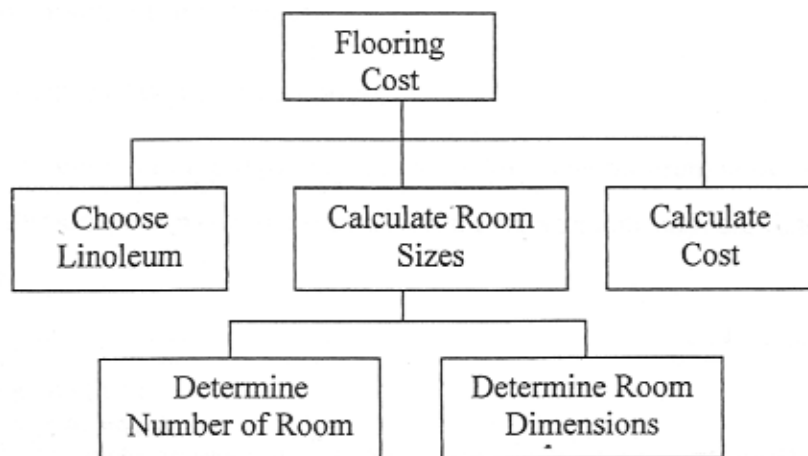


Figure C1: Structure Chart

Your program should define the following functions:

- **readRoomsSize.** This function will read the width and length of each room (which are obtained from the user), and calculate the area size of the room. The size should be stored in a dynamic array. The function should return a pointer that points to the array of rooms' sizes.

- **extractLinoInfo.** This function will extract the width, length and price of a linoleum from the linoleum code.

The output of the program should be printed into a file. Figure C2 shows an example run of the program. Note that the text in bold indicates input entered by the user. Figure C3 shows the equivalent output file.

```
What is the code of linoleum to use?: W08100150
How many rooms to floor?: 4

Enter the width and length of each room:
Room #1 => 20.5 18.0
Room #2 => 10.0 12.5
Room #3 => 10.0 12.5
Room #4 => 09.0 12.0

The flooring cost has been written into the output file
```

Figure C2: Example Run

```
Linoleum Size: 0.67 Feet x 0.83 Feet
Linoleum Price: RM 1.50 per piece
```

Room No.	Size(sqft)	Number of Linoleum(pieces)	Cost
1	369.00	665	RM 997.50
2	125.00	225	RM 337.50
3	125.00	225	RM 337.50
4	108.00	195	RM 292.50

```
Total Linoleum Required: 1310 Pieces
Total Cost: RM 1965.00
```

Figure C3: Example Output File

Note:

- Number of linoleum is calculated as: **Room Size / Linoleum Size**. It should be rounded up to the next nearest integer. For example 12.1 pieces should be considered as 13 pieces.
- 1 foot is equivalent to 12 inches