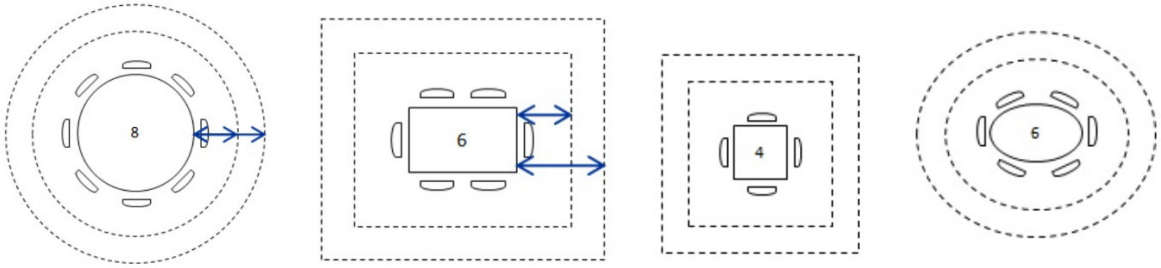
SCHOOL OF COMPUTER SCIENCES
UNIVERSITI SAINS MALAYSIA
ACADEMIC SESSION: 2021/2022

CPT 111 – PRINCIPLES OF PROGRAMMING
Assignment 1 Part A: Hackathon

Dining Table for the Living Room

You are working for an Interior Design company and you are in charge of finding the most appropriate dining table for family dining hall/room.

Based on the dimension provided by the customer of their dining hall/room, find a suitable table that can optimise the space without over-crowding it. The general principle is, to create a comfortable space, there should be about 1m space for the people's movement and chair usage and another 0.6m (minimum) to provide some space so there is some place to roam. You may refer to the diagram below to better depict the spacing description. The biggest table to comfortably fit into the dining hall is considered the best table to choose from.



Round Table | Rectangular Table | Square Table | Oval Table

The possible shape of dining table with the spaces dimension required to make it a comfortable fit based on the living room size.
The first dotted line near the perimeter of the table is the space for people's movement and the chairs while the outer dotted line is the extra space required to roam.

To automate the process of finding a suitable table for your customer's space, you want to write a program which can at least propose one the best possible tables from a selection of tables given below.

You may design the output so that it will give sufficient information to you on the advantage of the best tables your program has chosen.

Since this algorithm must be able to be used by all prospective houses, which your employer has an agreement with, it must be able to provide **at least one** and if possible the best two solutions based on different living room measurements. However, the program must use metric size (m, cm or mm).

The following are the dining tables available to be chosen by your programme given by the shape of the table and the name to the design:

1. Rectangle Heinrich
   1.3 m x 0.8 m
   6 seaters

2. Rectangle Niklas
   1.5 m x 0.9 m
   6 seaters

3. Rectangle Bertha
   2.1 m x 1.0 m
   8 seaters

4. Rectangle Shade
   3 m x 1 m
   12 seaters

5. Round Nadine
   1.5 m diameter
   8 seaters

6. Round Emma
   1.35 m diameter
   6 seaters

7. Square Lea
   0.9 x 0.9 m
   4 seaters

8. Square Finn
   0.76 x 0.76 m
   2 seaters

9. Oval Stefan
   3 m x 1.3 m
   10 seaters

Assumption: The dimension of the dining hall/room is in length and width and not in any specific order given as input.

You program must have the following features:

i. Interactive – menu to aid user, easy to follow
ii. Readable and meaningful comments in the source codes …