

# MEK3100 – Programming 2

## Programming Project 1

Fall 2021

**Due: Friday, 8 October 2021 23:59**

### Guidelines and warnings:

- Use your own approach and algorithm to write the code.
- You **are not allowed** to use concepts and topics we have not covered in the course yet such as arrays, structures, pointers, etc. Use whatever you have learnt from the beginning of the semester up until the end of chapter 6 (Functions) in a way that makes your job easier.
- Group members should discuss the problem together to come up with a solution (an algorithm) before writing the actual code.
- Any copies from the internet or other groups will give you an automatic **FAIL** for the project for every involved party (the giver and the taker).
- **Each group** must submit one C++ file (e.g. **project1.cpp**) at the end, including the source code of the project.
- The submission will be done electronically to Canvas.

### Project description

#### Wedding Planner

In this project, you will write a C++ program to assist in wedding planning. This program will mainly be used as an assistant to a wedding organization. Your program should work as follow:

1. Display a message stating that the Wedding Planning Assistant is pleased to be at your service!
2. Write a function that displays the following menu of choices:
  1. Enter number of invited guests.
  2. Determine the number of invitation cards and sweets
  3. Determine the number of tables needed
  4. Determine drinks order
  5. Cost of invitation cards
  6. Cost of drinks
  7. Display all information
  8. Quit
3. Write a function that reads the user's choice and returns it to the main program. If the user enters a number which is not a valid choice (other than 1, 2, 3, 4, 5, 6, 7, 8), then ask the user to input a valid choice again. You are not responsible for any error checking beyond identifying an invalid integer choice.
4. Write a function that prompts the user for the number of invited guests, reads that number and returns it to the main program.
5. Write a function that computes the number of invitation cards and also sweets needed. This function will take the number of invited guests as an input parameter (i.e., a parameter that should not be CHANGED

by this function). If the user hasn't entered the number of guests yet, display a message indicating that the user must select menu **option 1** before the number of invitation cards computed. Otherwise, the function will compute the number of invitation cards and sweets needed. These needs to be computed as follows:

- ✓ **Invitation cards:** Assume that children are not allowed to attend the party and each family has 2 members. Then, the number of invitation cards needed = number of invited guests / 2.
- ✓ **Number of sweets:** You would like to order some extra sweets to make sure that you do not run out of sweets in the wedding, so number of sweets = number of invited guests \* 1.2.

6. Write a function that computes the number of tables needed. This function will take the number of invited guests as an input parameter (i.e., a parameter that should not be CHANGED by this function). If the user hasn't entered the number of guests yet, display a message indicating that the user must select menu **option 1** before the number of tables computed. Otherwise, the function will return the number of tables needed. The number of tables needed should be computed as follows:

- ✓ Assume that the capacity of each table is for 6 people. Then, the number of tables needed = number of invited guests / 6. If the number of guests does not divide evenly by 6 then you need to allocate extra table. For example, you would reserve 8 tables for 44 guests.

7. Write a function that computes the coke and water order. This function will take the number of invited guests as an input parameter (i.e., a parameter that should not be CHANGED by this function). If the user hasn't entered the number of guests yet, display a message indicating that the user must select menu **option 1** before the beverage order can be computed. Otherwise, the function will compute the number coke cases and water cases. These numbers should be computed as follows:

- ✓ You should assume that one case of Coke will serve 6 guests. Again, use a CONSTANT to represent `people_per_coke_case` (of Coke), because you might need to change this later! The Wedding Planner Assistant assumes that people who like Coke will happily switch to water if you run out of Coke. Therefore, if the number of people drinking Coke does not divide evenly by `people_per_case`, don't order the extra case. For example, you would only order 2 cases of Coke if you had 13 to 17 guests drinking Coke.
- ✓ You should assume that one case of water will serve 2 guests. Again, use a CONSTANT to represent `people_per_water_case`, because you might need to change this later! The wedding planner will be happy to order extra water so this time when you need round the number up. For example, for 13 people, you need to order 7 cases of water.

8. Write a function that computes the cost of invitation cards. This function will take the number of invitation cards needed an input parameter and compute and return the total cost of the cards. If the user hasn't entered the number of guests yet, display a message indicating that the user must select menu **option 1** then menu **option 2** in order to get the cost of invitation cards. Assume that each invitation card costs 200 NOK.

9. Write a function that computes the cost of drinks. Your program needs to maintain two constant values, one for the cost of one case of coke and one for the cost of one case of water (`cost_water` and `cost_coke`). This function needs to calculate the cost of water and coke separately. Please note that this function needs to get the number of cases of cokes and cases of water to be ordered as input. If the user hasn't entered the number of guests yet, display a message indicating that the user must select menu **option 1** then menu **option 4** in order to get the cost of drinks. Assume that 1 case of coke = 30 NOK and 1 case of water = 20 NOK.

10. Write a function that takes all the information (number of guests, number of invitation cards, number of tables, cases of Coke, cases of water) as parameters and displays all this information on the screen for the user.
11. The user will request that the wedding planning assistant stop by selecting menu choice **8. Quit.**

**Example**

Enter the number of invited guests: 90

Needs: 45 invitation cards, 108 sweets, 15 tables, 15 cases of coke and 45 cases of water.

Cost of invitation cards: 9000 NOK

Cost of drinks: 450 NOK for coke and 900 NOK for water with a total of 1350 NOK.

Lykke til 😊