OBJECT ORIENTED PROGRAMMING 1 LABORATORY
Experiment # 1:
Introduction

OBJECTIVES

The main purpose of this experiment is to introduce you to Integrated Development Environments (IDE). In this experiment, firstly, steps for downloading and installation of an IDE are given. Then, we review some basic concepts and examine some examples.

INFORMATION

IDEs are used to develop, compile and run a computer program. Dev-C++ is a well-known, free, fast, and simple IDE for developing C codes. In order to use the IDE, you must follow the steps that are given below.

Step 1: Download Dev-C++. You can use the following website

https://sourceforge.net/projects/orwelldevcpp/files/latest/download

Step 2: Then, install the downloaded file.

Step 3: After installation, run the Dev-C++.

Step 4: Open a source file by using the ⬜ icon as shown in the Figure 1.
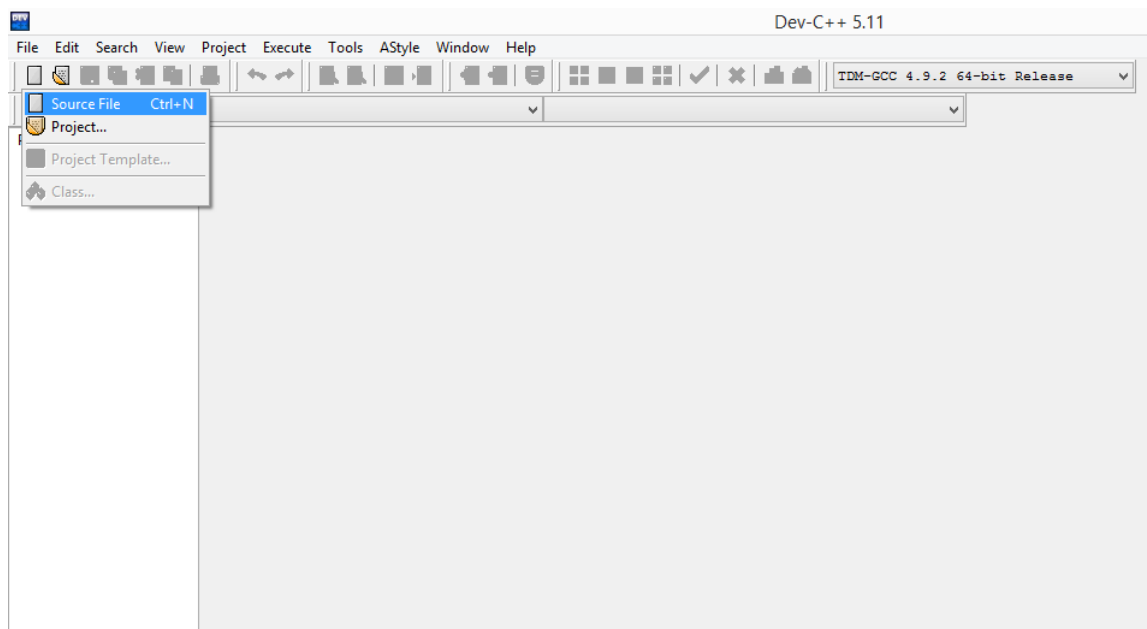

Fig. 1 Open a source file

Step 5: Save the file with name format as given below

Number_Name_Surname_groupNo_questionNumber.cpp
Example: 151220032037_BurakKaleci_1A_q1.cpp

E-mail : burakaleci@gmail.com

QUESTIONS

1) Write a C++ program to print the following texts.

- Print "Object Oriented Programming course will be funny." on one line.
- Print "Object Oriented Programming course will be funny." on two lines so that the first line ends with course
- Print the text " Object Oriented Programming course will be funny." with each word on a separate line.

2) Write a C++ program to calculate elapsed time (in seconds) by using robot linear velocity (in meter/seconds) and distance travelled (in meter). In the question, all variables must be declared as in double type.

i) The initial position of the robot is 0.
ii) Prompt the final position and velocity of the robot.
iii) Calculate travelled distance and elapsed time.
iv) Print the result.

3) Write a C++ program to implement following partial function. Test your program with i) x=-5, ii) x=-1, iii) x=3, iv) x=10. Read these values from the user. Use math library functions.

$$y = \begin{cases} \dfrac{x^3 + 4}{x^2}, & x < -3 \\ |x^2 + 3x - 10|, & -2 \le x < 0 \\ x^2 - 4x, & 0 \le x < 4 \end{cases}$$

4) Consider we have three integer numbers (a,b, and c). Write a C++ program to determine maximum of three numbers. Test your program with

i) a= 5, b=4, c=2
ii) a= 1, b=8, c=3
iii) a= 2, b=6, c=9

5) The following *checksum* formula is widely used by banks and credit card companies to validate legal account numbers:

$$d_0 + f(d_1) + d_2 + f(d_3) + d_4 + f(d_5) + d_6 + ... = 0 \ (\text{mod } 10)$$

The d_i are the decimal digits of the account number and $f(d)$ is the sum of the decimal digits of $2d$ (for example, $f(7) = 5$ because $2 \times 7 = 14$ and $1 + 4 = 5$). For example, 17327 is valid because $1 + 5 + 3 + 4 + 7 = 20$, which is a multiple of 10.

Write a C++ program to determine whether the number is valid or not. Print the result.
Test your program with n= 17327, n=974362