COMSC 165

Summer 2020

Programming Assignment 11

Worth 20 points (2% of your grade)

DUE: Friday, 7/24/20 by 11:59 P.M. on Canvas

You need to start by downloading the following files from Canvas:

165_assign11.cpp

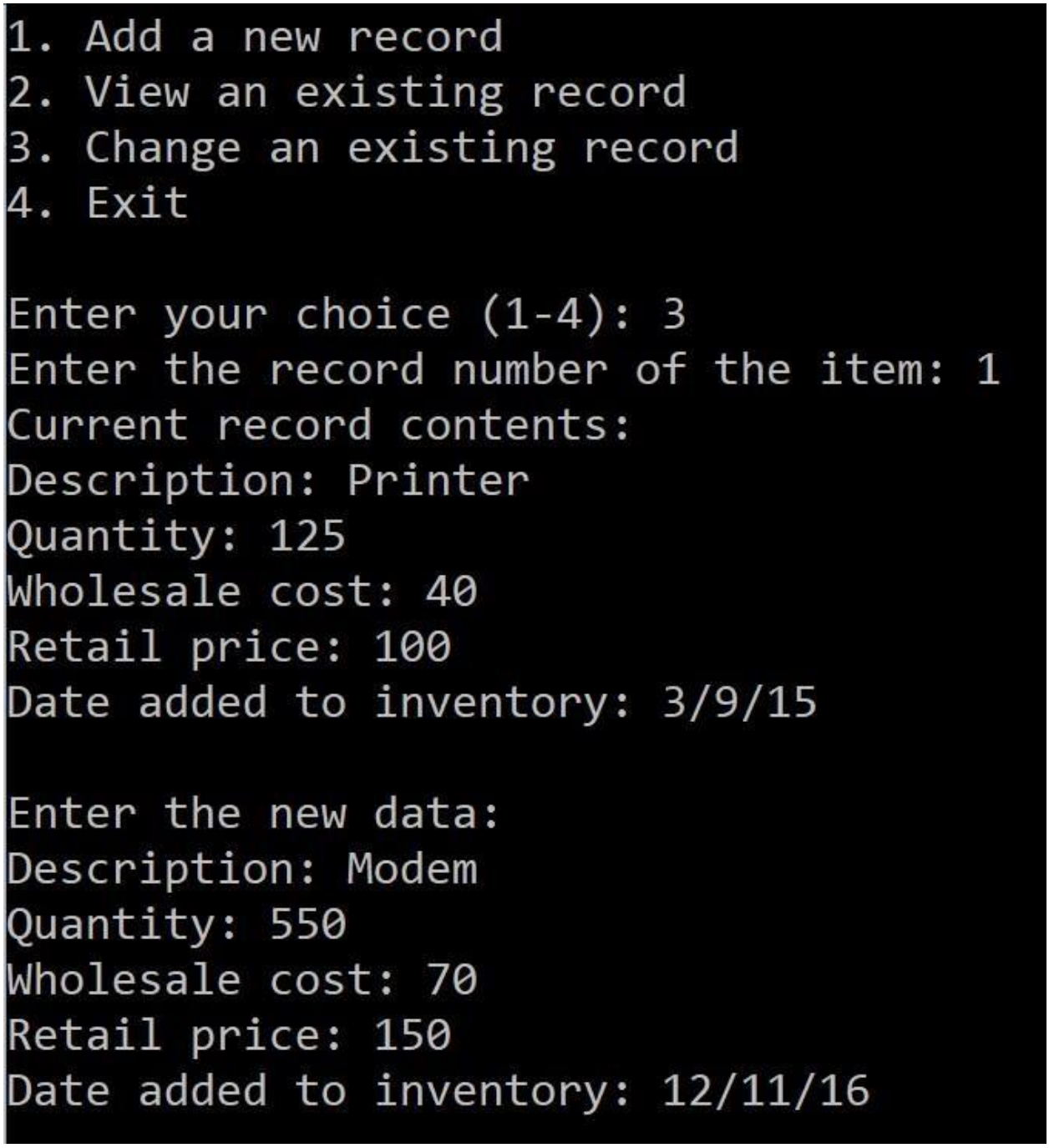
invtry**.dat**

NOTE: Your submission for this assignment should be a single **.cpp** file, a single **.pdf** file, and a single .dat file (invtry.dat).

The following naming convention should be used for naming your cpp/pdf files: **firstname_lastname_165_assign11.cpp and firstname_lastname_165_assign11.pdf**. The pdf file that you submit should contain the screenshots of your sample runs of the program (see below). For example, if your first name is "James" and your last name is "Smith", then your files should be named James_Smith_165_assign11.cpp and James_Smith_165_assign11.pdf. The .dat file should be named invtry.dat.

COMMENTS (7.5% of programming assignment grade): Your program should have at least **ten (10)** different detailed comments explaining the different parts of your program. Each individual comment should be, at a minimum, a sentence explaining a particular part of your code. You should make each comment as detailed as necessary to fully explain your code. You should also number each of your comments (i.e., comment 1, comment 2, etc.). **NOTE: All of your ten comments should be inside of the changeRecord function. My comments do NOT count towards the ten comments!**

SAMPLE RUNS (7.5% of programming assignment grade): You should submit screenshots of at least **five (5)** different sample runs of your program. Each sample run needs to use different user inputs, and your sample runs should **NOT** be the same as the sample runs that are used in this write-up for the assignment. You should also number each of your sample runs (i.e., sample run 1, sample run 2, etc.). Each sample run screenshot should show the change record option (option 3 on the menu). For each of your sample runs, choose option 3 on the menu (change record), and screenshot (1) the old data in the record and (2) the new data that you entered for the record. Each of your sample runs should be similar to this format:



Write a program that uses a structure to store the following inventory data in a **binary** file named invtry**.dat** (note the extension is **.dat** rather than .txt):

- Item Description
- Quantity on Hand
- Wholesale Cost
- Retail Cost
- Date Added to Inventory

The program should have a menu that allows the user to perform the following tasks:

- Add new records to the file. (this function is already completed for you)
- Display any record in the file. (this function is already completed for you)
- Change any record in the file. (you will be implementing this function)

Input Validation: The program should not accept quantities, or wholesale or retail costs, less than 0.

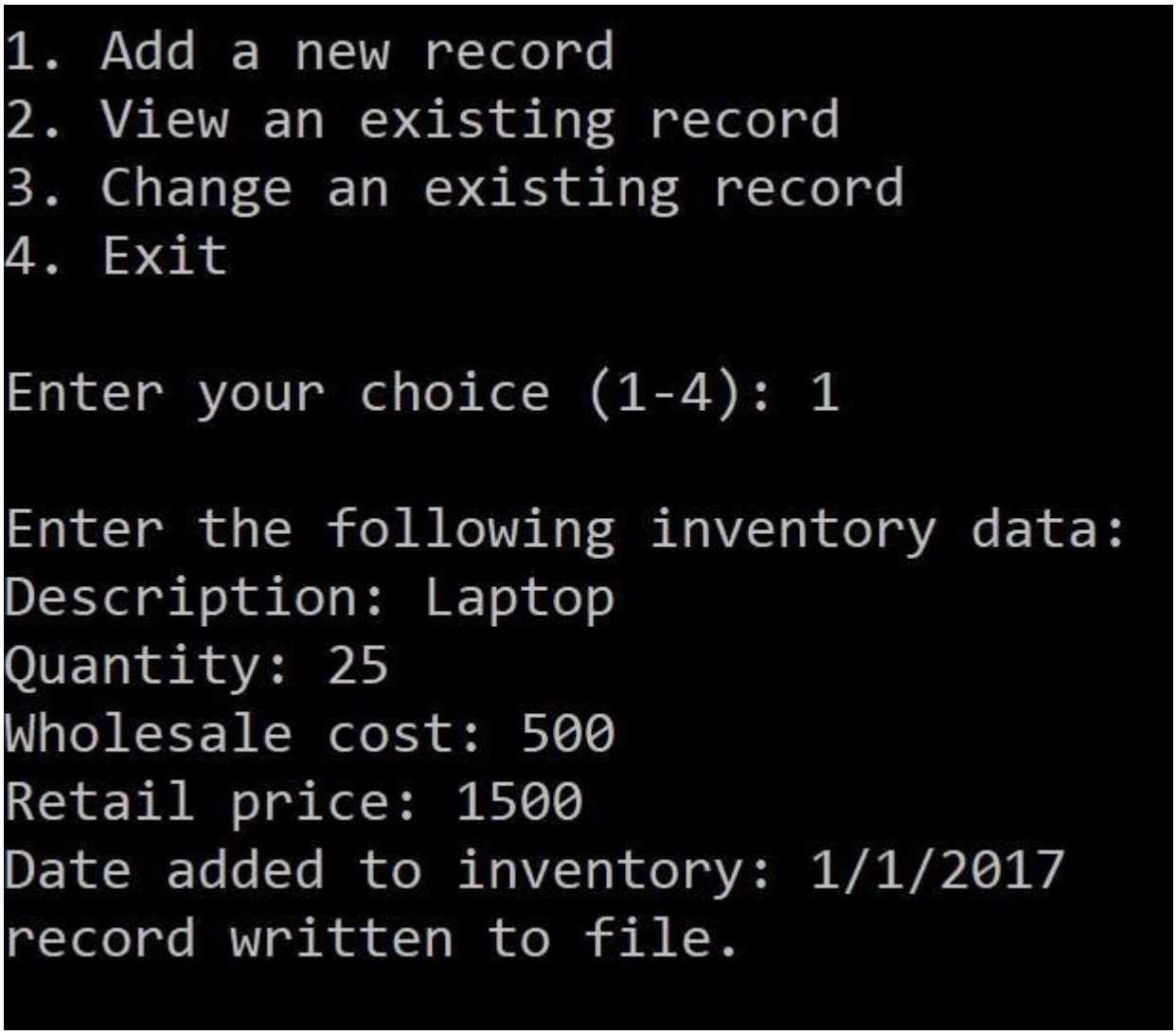
You will be implementing the following function:

```
void changeRecord(fstream &invFile)
//********************************************
// Function changeRecord                     *
// This function reads a specified record from   *
// the file and allows the user to change it.    *
//********************************************
```

NOTE: In all cases the **binary** file invtry**.dat** should be used. The file should always be opened in **binary mode**. For the changeRecord function, **random access** (NOT sequential access) should be used to view/change the record. For example, if the user wants to view/change record 35 in the file, the program should immediately move to that position in the file, without accessing any of the positions before it in the file.

Note that the extension of the file is .**dat**, NOT .txt.

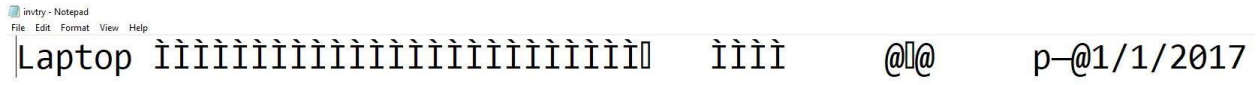
Sample run (option – add record)



```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 1

Enter the following inventory data:
Description: Printer
Quantity: 125
Wholesale cost: 40
Retail price: 100
Date added to inventory: 3/9/15
record written to file.
```

```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 1

Enter the following inventory data:
Description: Speakers
Quantity: 75
Wholesale cost: 20
Retail price: 60
Date added to inventory: 7/7/2007
record written to file.
```

Part of invtry.dat file:



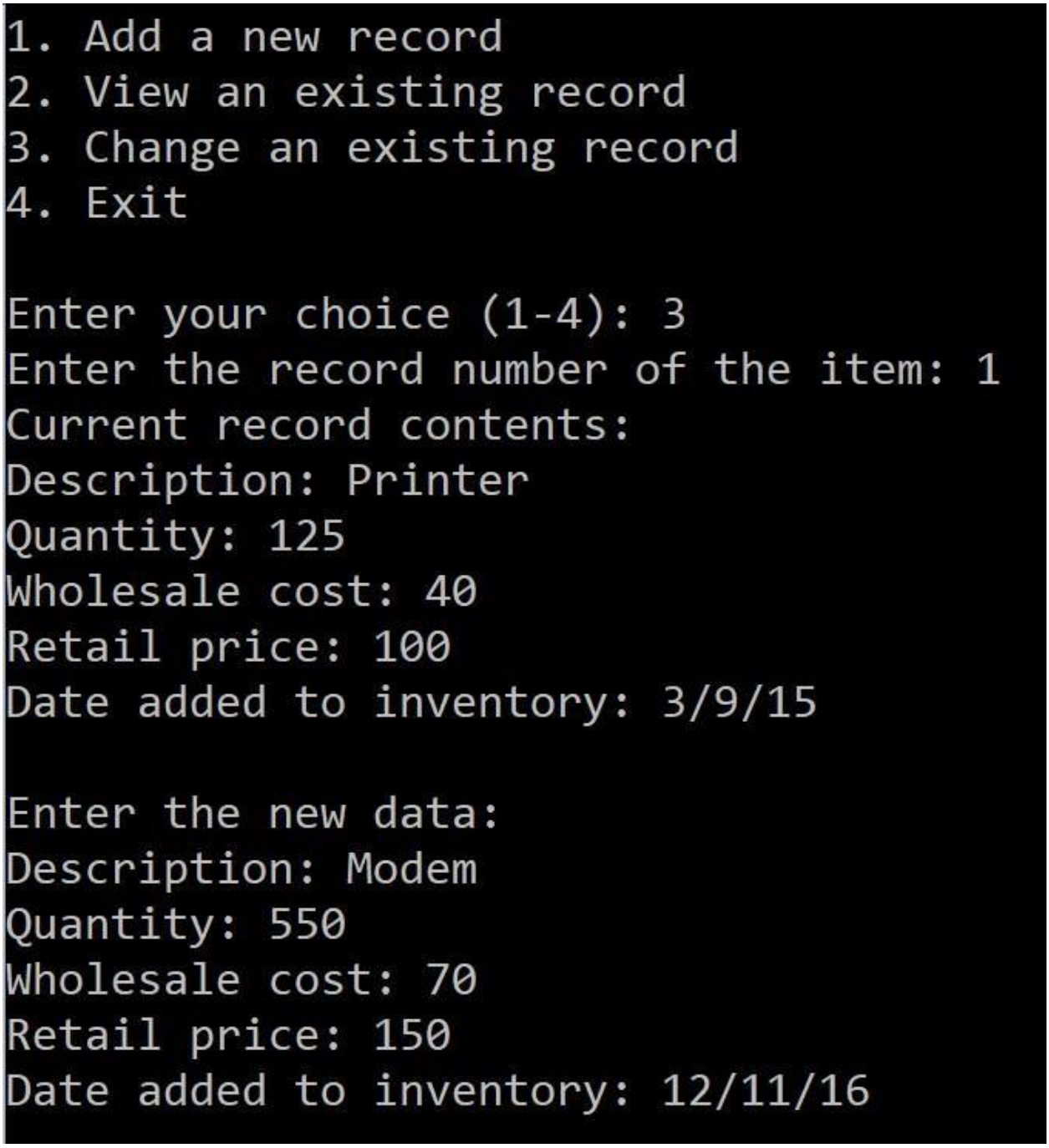
Sample run continued (view record option)

```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 2

Enter the record number of the item: 0
Description: Laptop
Quantity: 25
Wholesale cost: 500
Retail price: 1500
Date added to inventory: 1/1/2017
```

```
Enter your choice (1-4): 2

Enter the record number of the item: 1
Description: Printer
Quantity: 125
Wholesale cost: 40
Retail price: 100
Date added to inventory: 3/9/15
```

```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 2

Enter the record number of the item: 2
Description: Speakers
Quantity: 75
Wholesale cost: 20
Retail price: 60
Date added to inventory: 7/7/2007
```

Sample run continued (change record option)



Sample run continued (view record option)

```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 2

Enter the record number of the item: 1
Description: Modem
Quantity: 550
Wholesale cost: 70
Retail price: 150
Date added to inventory: 12/11/16
```

```
1. Add a new record
2. View an existing record
3. Change an existing record
4. Exit

Enter your choice (1-4): 0
ERROR. Enter 1, 2, 3, or 4: 5
ERROR. Enter 1, 2, 3, or 4: 4
Press any key to continue . . .
```