

# CMPS 150 – Fall 2005

## Programming Assignment #4

2005.10.03

**Date Assigned:** Monday, October 3, 2005  
**Due Date:** 10:00 PM, Sunday, October 9, 2005

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The coded solution to the following problem is to be done by you and only you. You may ask for help from the class teaching assistants and the instructors, but you may not ask for C++ help from anyone else. You may use your notes, C++ texts, online tutorials, etc., but the code must be your own.

If you have a problem with your class account, compiling or debugging your code, or if you are not certain if you have submitted correctly, come see a TA or instructor as soon as possible.

### 1) Include the following information as comments in the header of your source code:

```
Author:          Your-Name
CLID:           Your-login-ID
Class:          CMPS 150 Section Your-Section-Number
Assignment:     pa4
Date Assigned:  Monday, October 3, 2005
Due Date:       10:00 PM, Sunday, October 9, 2005
Description:    A brief description of the purpose of the
                program.
```

This is to be followed by this statement.

```
Certification of Authenticity:
I certify that this assignment is entirely my own work.
```

### 2) While in your class folder, enter the C++ code for the following description into pa4.cc

#### 3) Problem Description:

This program will use the features of C++ that we have learned thus far in CMPS150, focusing primarily on selection/decision statements.

You are to write a program for the following problem description. A local hospital needs a program to compute and print a statement for each patient. Charges for each day are:

room charges: private room (\$300), semi-private room, (\$195), 6-patient ward room (\$95)

telephone charge: \$2.25

television charge: \$4.00

NOTE: Neither the telephone charge nor the television charge may exceed \$100, regardless of length of stay.

Your program must first prompt the user for the patient name (which may contain spaces), the number of days in the hospital, the type of room (single character data), whether or not a telephone was used (single character data), and whether or not a television was used (single character data).

After all input is gathered, perform appropriate calculations and output a patient bill. See sample run.

- 4) **Sample Run:** Your monitor output should look similar to the following (items underlined and italicized are input by the user at the keyboard):

```
Enter name of patient: Joe Bob Smith
Number of Days in Hospital: 5
Room Type (P = Private, S = Semi-Private, W = 6-patient Ward): P
Telephone Use (Y/N): Y
Television Use (Y/N): Y

Community Hospital
Total Bill for: Joe Bob Smith
-----
Length of Stay (Days): 5
                Room Type: Private

Room Charge           1500.00      (5 days @ $300 per day)
Telephone Charge           11.25
Television Charge           20.00
-----
TOTAL BILL             $ 1531.25
```

**Another Sample Run:**

```
Enter name of patient: Jane Doe
Number of Days in Hospital: 56
Room Type (P = Private, S = Semi-Private, W = 6-patient Ward): S
Telephone Use (Y/N): N
Television Use (Y/N): Y

Community Hospital
Total Bill for: Jane Doe
-----
Length of Stay (Days): 56
                Room Type: Semi-Private

Room Charge           10920.00     (56 days @ $195 per day)
Telephone Charge           0.00
Television Charge           100.00
-----
TOTAL BILL             $ 11020.00
```

## IMPORTANT NOTE:

**Files submitted that do not compile will receive a grade of zero !!!**

### 5) Additional Requirements:

- All monetary output must be displayed with a precision of 2.
- Constants must be used for ALL values that are known prior to compile time and WILL NOT change due to user input, for example, the handling fee.
- Use comments as appropriate. Refer to the “Programming Style Sheet” on the CMPS 150 web site.
- Your program must use good names for all variables and named constants. (Good names are names that are descriptive of the values stored or the function performed.)
- Adhere to style requirements. See “Programming Style Sheet” on the CMPS 150 web site.

6) You MUST name your source file 'pa4.cc' and store it in your class directory (cs150x).

7) Compile your program and test it for all types of customers.

To compile:

```
g++ -o pa4run pa4.cc
```

To run (execute):

```
pa4run
```

8) After it is debugged and running correctly, submit pa4.cc (the source file only) electronically by 10:00 PM, Sunday, October 9, 2005 to receive full credit.

```
submit -d pa4.cc
```

When asked to enter the CLID of the grader/TA, enter the appropriate one of the following:

<u>Section</u>	<u>TA</u>	<u>CLID of TA</u>
Section 3.....	Gesan .....	gxw2096
Section 4.....	Anca.....	axd9917
Section 5.....	Mitun .....	mxb2169
Section 6.....	Jason.....	jbm8240

You will be asked to enter which assignment is being submitted. This assignment is:

```
assn4
```

REMINDER: You may turn in programs up to 24 hours late for 75% credit, or up to 48 hours late for 50% credit.