

UNIVERSITY *of* MARYLAND
UNIVERSITY COLLEGE - *Asian Division*

Project 4: The Casino Revisited

Objective:

In this lab you will write a C++ programming language program that utilizes input, output, conditional statements, a loop, and file write.

Program Requirements:

The gambling casino in Tinian, CNMI liked your first program, but they need some major modifications. They have agreed to host you for an all expense paid week to observe the casino in action.

You discover that the program would be far more efficient if it does not have to be restarted for each new customer. This would be a good place to use a loop. Also you have observed the following: It appears that the Americans are trying to avoid showing a win by asking the non-American customers if they can have their chip purchase receipts. Therefore, you should collect the chip purchase receipts from everyone. There is no point in asking for the social security number or citizenship for that matter unless the gambler won. All a loser needs is the cash for the remaining chips. After all information is entered, the casino wants you to display a summary of the chip count input data, the total value of the chips, the total amount of chip purchase receipts, the amount the customer won or lost, the total tax paid, and the cash paid to the customer for the chips. This will be printed out for all U.S. customers by doing a print screen. Therefore, the summary display should not exceed one screen, which is 24 lines. The casino also wants to log all cashier transactions and gambler data in a text file on the cashier's computer. The casino has also added a yellow chip worth \$500 to satisfy the high rollers.

Due to public outcry concerning the 20% withholding tax rule for American citizens the law was changed. Instead of a standard 20% deduction the casino now has to calculate withholding tax based on the following guidelines. First the AARP got there way by lobbying the US Congress and anyone 65 or older will not have any tax withheld. American citizens under 65 will have tax withheld depending on their tax bracket. If a US citizen's annual income is less then or equal to \$45,000, a withholding tax of 15% will be applied to the profits. Otherwise, a withholding tax rate of 30% will be applied to the profits. Unfortunately, that also means that things will not be coming out in nice round dollar numbers anymore and you will have to calculate amounts to the penny. (Guess it is time to do things using floating point numbers.)

The casino has agreed to pay you one red chip per hour until you complete the program.

Project Report:

This program is due Wednesday of the eighth week of classes. No late programs will be accepted. You will be awarded partial credit for those sections that work. So build this program in a modular way verifying each section independently.

Submit a project report with the following items: cover sheet, program specifications section, algorithm specifications section (include equations and flow chart), known test data for two runs of every possible path as viewed on the flow chart, source code with included comments, and sample output for every possible path as viewed on the flow chart which should verify the program works. Also provide a conclusion section, which describes how the program went, known problems, and number of red chips you earned for developing this program? You will need to demonstrate the working program to the instructor.

Note as specified on the Syllabus a grade of 80% will be awarded for minimally fulfilling all program specifications. To exceed an 80% grade you must exceed the requirements and neatness does count. The program is due at the beginning of class and late reports will be reduced 25% for each class period late.