

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

## Project 4: Casino Program

### Objective:

In this lab you will create a C++ programming language program that utilizes input, output, selection and loop programming structures, arrays, data records, and at least two user defined functions.

The program is due the seventh week at the beginning of the first class. Submit a program specification document which includes: analysis, specifications, a planned user interface, test data to test all possible conditions of selection structures, and flow charts for all user defined functions. Also include a source code listing, and a copy of the output and the generated text file for several runs of the test data. Submit a conclusion section, which describes what sections worked of your program and extra work performed in your program.

### Program Requirements:

Taiwanese developers are creating a gambling casino at Palau, an island republic of Micronesia. They heard of your programming talents and have contracted with you to create an accounting program that will assist in cashing out clients chips. They have agreed to fly you over for an all expense paid week to observe the casino in action.

You enjoy your time in Palau while doing your Problem Solving Phase "research" and begin by outlining your "Program Specs". You have agreed that you will not leave Palau until all parties agree with your Program Specifications Report. Once the report is approved you will enter the Implementation Phase and return home to do your coding. The casino has agreed to pay you one red chip per hour until you complete the program.

The program will be started at the beginning of a cashier shift and be run on all cashier data entry computers. The program will assist the cashier by calculating the value of chips and determine tax withholdings based on the new IRS regulations for U.S. Citizens. A record of all customer cash out transactions will be saved to the file CASHxxxx.TXT, where xxxx will be the cashier's ID number which they will enter when starting the program (See p.174). The network administrator will collect these files via the LAN network at the end of each shift. You observe that the general sequence of events at the cashier window is as follows:

The customer submits to the cashier all chips they wish to cash out.

Chips are counted and the total sum is calculated based on the following values:

Black = \$5

Blue = \$20

Red = \$50

Green = \$100

Silver = \$500

Gold = \$1000

The customer is asked to present receipts for purchased chips. Since gamblers generally make several purchases of chips in one night the program will prompt for multiple entries. If the customer can not locate receipts, then all chips will be considered taxable winnings if they are a US Citizen.

The winnings are calculated based on the previous information

If the customer has lost they are simply paid in cash for all chips.

If the customer has won, the following information needs to be requested to determine tax based on the latest IRS regulations.

Only U.S. Citizens will have withholding tax subtracted from the winning for the IRS.

All U.S. Citizens must enter a Social Security Number.

The AARP got their way through heavily lobbying the U.S. Congress and anyone over 65 will not have tax withheld, however winnings will reported to the IRS.

American citizens under 65 will have tax withheld depending on their tax bracket. The major capitalists in the senate got their way through filibustering and gambling winnings are now considered short term capital gains. Withholding tax will be deducted from the winnings based on the following IRS regulations:

Citizens with an annual salary of less than \$10,000 will have 0% withholding tax deducted.

Citizens with an annual salary between \$10,000 and \$36,000 will have 15% withholding tax deducted from winnings.

Citizens with an annual salary over \$36,000 will have 25% withholding tax deducted from winnings.

Should a U.S. Citizen choose either the 0% or 15% tax rate they will be warned that underpayment penalties may apply.

Payment is then made to the customer.

A record of the entire transaction is saved to disk.

### **Additional Program Requirement:**

For this program you are required to write at least two user defined functions to be used in the program.

You are required to create a data structure for customer transactions.

You are required to print out the contents of the data record in summary format on the screen at the end of each transaction.

You are required to save the contents of all data records to the text file described earlier.

### **Lab Report**

Submit, on or before the due date the following for grading. A cover sheet with your name and project name. A program specifications report which was approved by the casino discussing the analysis involved during the problem solving phase and described above in objective section. Include a source code listing for your program and a printout for your output window for all runs of test data. Include a conclusion section which contains information described above in objective section. Note as specified on the Syllabus a score of 80% will be awarded for fulfilling all program specifications in a minimal way. To exceed an 80% score you must exceed the requirements and neatness does count.