**Technical Design Document For Chapter 1 Exercise**

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**Program Description:**

This program pre-sells a limited number of movie tickets to buyers. Each buyer can buy up to 4 tickets and a maximum of 20 tickets can be sold. The user will be asked how many tickets to buy. After selecting the amount of tickets, the amount of remaining tickets will be displayed, until all tickets have been sold.

**Functions used in the Program (list in order as they are called):**

1. **Function Name:** get\_user\_tickets

**Description:** This function asks the user how many tickets they’d like to buy. The user can only enter a number 1-4, so if the number is less than 1 or greater than 4, the program will output, “Please enter a number 1-4.” If the user doesn’t enter a number, the program will output, “Invalid input. Enter a number.” Finally, if the user enters a number 1-4 the program will return the variable ‘user\_tickets’ with the value the user entered.

**Parameters:** This function does not take in any parameters.

**Variables:** user\_tickets: the number of tickets the user would like to purchase.

**Logical Steps:** While true, the function asks the user for a number of tickets and assigns the value to the variable ‘user\_tickets.’ If the value meets the requirement, it will return the variable. If not, the program will ask the user to try again.

**Returns:** The function returns ‘user\_tickets’ to be used later in the program.

2. **Function Name:** sell\_tickets

**Description:** This function takes in the ‘remaining\_tickets’ variable and the ‘total\_buyers’ variable. A while loop is created to repeat the question of how many tickets the user would like to buy. Inside the while loop, the number of remaining tickets is displayed and the ‘get\_user\_tickets’ function is called. If the user input is greater than the number of remaining tickets, the program will display, “Not enough tickets available.” Otherwise, the value of remaining tickets will decrease and the ‘total\_buyers’ variable will increase by one. The function will then return ‘remaining\_tickets’ and ‘total\_buyers.’

**Parameters:** The function takes in the ‘remaining\_tickets’ variable and the ‘total\_buyers’ variable to be used in the calculations.

**Variables:**

1. tickets\_to\_buy calls the first function to receive input.
2. remaining\_tickets allows the program to display how many tickets are available.
3. total\_buyers is the accumulator.

**Logical Steps:**

1. Print the number of remaining tickets.
2. Call the get\_user\_tickets function.
3. If statement to print an error message or perform calculations.
4. Return the variables ‘remaining\_tickets’ and ‘total\_buyers.’

**Returns:** The function returns the variables ‘remaining\_tickets’ and ‘total\_buyers’ to be used to display the result.

**Logical Steps:**

1. get\_user\_tickets is called within sell\_tickets.
2. Call sell\_tickets with the variables ‘remaining\_tickets’ and ‘total\_buyers.’

**Link to your repository:** <https://github.com/Jackson112607/COP2373-ProgrammingConceptsII>