

## CSC107 2.0 Computer Programming - Laboratory I

### Lab sheet 06

To understand and practice the use of conditional statements through simplified real-world scenarios. Do not use loops.

1. What is wrong in the following code? Complete the program.

```
if radius >= 0 {  
    area = radius * radius * PI;  
    printf("The area for the circle of radius %.2f is %.2f\n",  
        radius, area);  
}
```

2. Write a simple program with an if statement that assigns 1 to x if y is greater than 0.
3. Write a simple program with an if statement that increases pay by 3% if the score is greater than 90, otherwise increases pay by 1%.
4. A fitness app determines if a user has met their daily step goal. The goal is 10,000 steps. Write a C program that takes the user's step count as input and prints a message indicating whether the goal was met.
5. A library system needs to check if a user can borrow a book. A user can borrow a book if they have no overdue books and have not exceeded the borrowing limit of 5 books. Write a C program that checks these conditions and prints whether the user can borrow a book.
6. A concert ticket system allows access only if the user is either a VIP member or has a ticket. Write a C program that checks if the user can access the concert.
7. Write a C program to determine if a user is eligible for a library membership. The user is eligible if they are a student or a resident of the city. Additionally, if they are both a student and a resident, they receive a discount on the membership fee. Hint: Input: Whether the user is a student (1 for yes, 0 for no). Whether the user is a city resident (1 for yes, 0 for no).
8. Write a C program to determine if a student is eligible for a scholarship based on their academic performance and extracurricular activities. The conditions are:

GPA  $\geq$  3.5 and SAT score  $\geq$  1200: Full scholarship

GPA  $\geq$  3.0 or SAT score  $\geq$  1000 and participation in extracurricular activities: Partial scholarship

Otherwise: Not eligible for scholarship

9. Write a C program to authorize ATM transactions based on the account balance and withdrawal amount. The conditions are:

If the withdrawal amount is less than or equal to the account balance and greater than 0:  
Authorize transaction  
Otherwise: Decline transaction

10. Write a C program to determine if a person is **eligible to ride** a roller coaster in an amusement park based on their age and height. The conditions are:

Age  $\geq 12$  and height  $\geq 150$  cm: Eligible to ride

Age  $\geq 8$  or height  $\geq 130$  cm: Eligible to ride with an adult

Otherwise: Not eligible to ride

Hint: You have to display only the ride eligibility.