1. Write a C program to determine if a given number is positive, negative, or zero using nested if-else statements.
2. Create a program that checks if a year entered by the user is a leap year using nested if-else conditions.
3. Develop a C function that calculates the largest of three numbers using nested if-else statements.
4. Write a program in C to determine the grade of a student based on their marks using nested if-else conditions.
5. Design a function in C that checks if a given character is a vowel or consonant using nested if-else conditions.
6. Develop a C program that determines the type of triangle based on the input of three sides using nested if-else conditions (scalene, isosceles, equilateral).
7. Write a program in C to determine the largest among three numbers entered by the user using nested if-else statements.
8. Create a function in C that calculates the factorial of a number using nested if-else conditions for handling special cases (e.g., negative numbers, zero).
9. Implement a C program that checks if a given year is a leap year and also validate if the input year is within a valid range using nested if-else statements.
10 : Leap year example
11 : Convert kilometer to meter cm and mm
12 : Check given character is vowel or not
13 : Calculator using else if.
14 : Marksheet using if else and switch.

15 : You are tasked with building a system to determine a **customized insurance premium** for a customer based on multiple factors:

- **Age**
- **Health condition**
- **Type of job**
- **Driving history**
- **Geographical location**

The premium is calculated based on the following rules:

Rules:

1. **Age**:
    - If the customer is below 18, they are not eligible for insurance.
    - If the age is between 18 and 25:
        - Add a base premium of $200.
    - If the age is between 26 and 40:
        - Add a base premium of $150.
    - If the age is above 40:
        - Add a base premium of $100.
2. **Health condition**:
    - If the customer has any major health issues (diabetes, heart disease, etc.):

        - Add an extra $100.
    - If the customer is in good health:
        - No additional charge.
3. **Job type**:
    - If the job is high-risk (construction, mining, etc.):
        - Add an extra $200.
    - If the job is medium-risk (factory worker, driver):
        - Add an extra $100.
    - If the job is low-risk (office worker, teacher):
        - No additional charge.
4. **Driving history**:
    - If the customer has had multiple accidents in the last 3 years:
        - Add an extra $150.
    - If they have a clean record:
        - No additional charge.
5. **Location**:
    - If the customer lives in a high-risk area (flood-prone, earthquake-prone):
        - Add an extra $200.
    - If the location is medium-risk:
        - Add an extra $100.
    - If it's low-risk:
        - No additional charge.

16 : University Admission System

You need to create a system that determines whether a student qualifies for admission to a university based on their **grades**, **extracurricular activities**, **entrance exam score**, and **financial background**.

Rules:

1. **Grades**:
    - If the grade is below 50%:
        - Admission is rejected.
    - If the grade is between 50% and 70%:
        - Proceed to check extracurriculars.
    - If the grade is above 70%:
        - Proceed to entrance exam.
2. **Extracurricular Activities**:
    - If the student has participated in sports or arts competitions:
        - Add 10 bonus points to entrance score.
    - No extracurriculars:
        - No bonus points.
3. **Entrance Exam Score**:
    - If the score is below 40:
        - Admission is rejected.

    - If the score is between 40 and 60:
        - Check financial background.
    - If the score is above 60:
        - Grant admission.
4. **Financial Background**:
    - If the student comes from a low-income family:
        - Add financial aid.
    - Otherwise:
        - Standard fee applies.

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17 : Loan Approval System

Design a system to approve or reject a **loan application** based on **income**, **credit score**, **existing debt**, and **employment stability**.

Rules:

1. **Income**:
    - If the income is below $20,000:
        - Loan is rejected.
    - If income is between $20,000 and $50,000:
        - Proceed to credit score check.
    - If income is above $50,000:
        - Proceed to debt check.
2. **Credit Score**:
    - Below 600:
        - Loan is rejected.
    - Between 600 and 750:
        - Higher interest rate applied.
    - Above 750:
        - Low interest rate applied.
3. **Existing Debt**:
    - If existing debt is greater than 50% of income:
        - Loan is rejected.
    - Otherwise, proceed.
4. **Employment Stability**:
    - Less than 2 years of stable employment:
        - Loan is rejected.
    - More than 2 years:
        - Loan is approved.

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18 : Tax Calculation System

Create a system that calculates **tax rates** based on **income level**, **marital status**, **number of dependents**, and **special tax exemptions**.

Rules:

1. **Income Level**:
    - Below $30,000:
        - No tax.
    - Between $30,000 and $60,000:
        - Base tax is 10%.
    - Above $60,000:
        - Base tax is 20%.
2. **Marital Status**:
    - Married:
        - 5% tax deduction.
    - Single:
        - No deduction.
3. **Dependents**:
    - For each dependent, reduce tax by 2%.
    - Maximum reduction is 10%.
4. **Special Exemptions**:
    - If the individual qualifies for veteran benefits or disability:
        - Additional 5% deduction.

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19 : Electricity Bill Calculation

Develop a system to calculate the **electricity bill** based on **units consumed**, **type of customer**, **time of consumption**, and **special subsidies**.

Rules:

1. **Units Consumed**:
    - Below 100 units:
        - $1 per unit.
    - Between 100 and 500 units:
        - $1.5 per unit.
    - Above 500 units:
        - $2 per unit.
2. **Type of Customer**:
    - Residential:
        - No extra charges.
    - Commercial:
        - Add 10% surcharge.
    - Industrial:
        - Add 15% surcharge.
3. **Time of Consumption**:
    - Peak hours:

        - Add 20% surcharge.
    - Off-peak hours:
        - No surcharge.
4. **Special Subsidies**:
    - If the customer is from a rural area or has senior citizen benefits:
        - 10% discount.