

- Write a C program to determine if a number is positive, negative, or zero using an `if-else` statement.
- Write a C program that reads three numbers and prints the largest one using nested `if` statements.
- Write a C program to check if a number is even or odd using the modulus operator and an `if-else` statement.
- Write a C program to find the absolute value of a number using a conditional (`if`) statement.
- Write a C program to determine whether a year is a leap year using an `if-else` statement.
- Write a C program to check whether a number is divisible by both 3 and 5 using a single `if` statement.
- Write a C program that reads two numbers and checks if the first number is a multiple of the second using an `if-else` statement.
- Write a C program that takes an integer and checks if it falls in the range 1 to 100 using an `if-else` statement.
- Write a C program to check whether a number is positive, negative, or zero using a `switch` statement.
- Write a C program that takes a day number (1-7) and prints the corresponding day of the week using a `switch` statement.
- Write a C program to take a grade (A, B, C, D, or F) as input and print the corresponding grade description using a `switch` statement.
- Write a C program to take a month number (1-12) and print the number of days in that month using a `switch` statement (assume non-leap year).
- Write a C program to take two integers and an operator (+, -, *, /) as input and perform the corresponding arithmetic operation using a `switch` statement.
- Write a C program to calculate the electricity bill based on usage using `if-else` statements with different rate slabs.
- Write a C program to find the minimum of two numbers using a simple `if` statement.
- Write a C program to calculate the roots of a quadratic equation using `if-else` to handle different cases (real roots, complex roots, etc.).
- Write a C program to find if a character is a vowel or a consonant using an `if-else` statement.
- Write a C program to find the maximum of three numbers using `if-else` statements.

- Write a C program that checks if a person is eligible to vote based on their age using an `if` statement.
- Write a C program to print "odd" or "even" depending on whether a number is odd or even, using a ternary (`?:`) operator.
- Write a C program that reads a person's height and classifies them as "short", "average", or "tall" using `if-else` statements.
- Write a C program that checks whether a number is divisible by 2, 3, or both using `if-else if` statements.
- Write a C program to calculate the grade of a student based on their marks using `if-else` statements (90-100: A, 80-89: B, etc.).
- Write a C program that reads the marks of five subjects and calculates the percentage. Print the result as "Pass" or "Fail" based on whether the percentage is above a certain threshold using `if-else`.
- Write a C program that reads a year and prints whether it is a leap year using nested `if` statements.
- Write a C program to calculate the fare for a taxi ride based on distance traveled, using `if-else` to apply different rates for different ranges of distance.
- Write a C program that takes the temperature as input and prints "Cold", "Warm", or "Hot" depending on the temperature range using `if-else` statements.
- Write a C program to check whether a character is uppercase, lowercase, or a digit using `if-else` statements.
- Write a C program to determine if a number is a perfect square using conditional (`if`) statements and the square root function.
- Write a C program to determine the smallest of three numbers using nested `if` statements.
- Write a C program to classify an angle as acute, obtuse, or right based on its degree value using `if-else` statements.
- Write a C program that takes two integers as input and determines their relationship (equal, first greater, second greater) using `if-else`.
- Write a C program that reads a letter and checks whether it is a vowel (lowercase or uppercase) using `switch` statements.
- Write a C program to determine the season ("Winter", "Spring", "Summer", or "Fall") based on a month number using a `switch` statement.
- Write a C program to find whether a character is a digit or not using `if-else` statements.
- Write a C program to classify a triangle based on the lengths of its sides (equilateral, isosceles, or scalene) using `if-else` statements.

- Write a C program to determine if a number is positive and even, positive and odd, or negative using `if-else` statements.
- Write a C program to check whether a number is divisible by 7 or 11 using `if-else` statements.
- Write a C program to determine whether a person is a child, teenager, or adult based on their age using `if-else` statements.
- Write a C program that takes the current hour of the day as input (0-23) and prints "Good Morning", "Good Afternoon", "Good Evening", or "Good Night" based on the time using `if-else` statements.

Problem 1: Rainy Day Decision

Time limit: 1 second

Memory limit: 64 MB

You are planning an outing with your friends, but you are unsure whether to go out or stay indoors. You have access to weather information that tells you if it is raining or not. You will only go out if it is not raining.

Write a program that takes a weather condition (either "rainy" or "clear") as input and prints "Go out" if the weather is clear and "Stay indoors" if it is rainy.

Input

- A single word, either "rainy" or "clear".

Output

- A single line containing either "Go out" or "Stay indoors".

Problem 2: Eligibility to Vote

Time limit: 1 second

Memory limit: 64 MB

In many countries, the minimum age for voting is 18. You are tasked with writing a program that checks if a person is eligible to vote based on their age.

Write a program that takes the age of a person as input and prints "Eligible to vote" if the person is 18 years or older, and "Not eligible to vote" otherwise.

Input

- A single integer representing the age of the person.

Output

- A single line containing either "Eligible to vote" or "Not eligible to vote".

Problem 3: Electricity Bill Calculation

Time limit: 1 second

Memory limit: 64 MB

You are tasked with calculating the electricity bill for a household. The billing rates are as follows:

- For the first 100 units, the rate is 5 per unit.
- For the next 100 units (101 to 200), the rate is 7 per unit.
- For units above 200, the rate is 10 per unit.

Given the number of units consumed by a household, calculate the total bill.

Input

- A single integer representing the number of units consumed.

Output

- A single integer representing the total bill amount.

Problem 4: Grade Classification

Time limit: 1 second

Memory limit: 64 MB

Students in a school are graded based on their marks. The grading system is as follows:

- 90 to 100 marks: Grade A
- 80 to 89 marks: Grade B
- 70 to 79 marks: Grade C
- 60 to 69 marks: Grade D
- Below 60 marks: Grade F

Write a program that takes a student's marks as input and prints their grade.

Input

- A single integer representing the student's marks (between 0 and 100).

Output

- A single character representing the student's grade (A, B, C, D, or F).

Problem 5: Parking Fee

Time limit: 1 second

Memory limit: 64 MB

A parking lot charges fees based on the number of hours a car is parked. The charges are as follows:

- 1 to 3 hours: 10 units per hour.
- 4 to 6 hours: 8 units per hour.
- More than 6 hours: 5 units per hour.

Write a program that calculates the total parking fee based on the number of hours the car is parked.

Input

- A single integer representing the number of hours the car was parked.

Output

- A single integer representing the total parking fee.

Problem 6: BMI Calculator

Time limit: 1 second

Memory limit: 64 MB

The Body Mass Index (BMI) is calculated using the formula:

$$BMI = \frac{\text{weight (kg)}}{\text{height (m)}^2}$$

Based on the BMI value, the following classifications apply:

- BMI < 18.5: Underweight
- $18.5 \leq \text{BMI} < 24.9$: Normal weight
- $25.0 \leq \text{BMI} < 29.9$: Overweight
- BMI ≥ 30.0 : Obese

Write a program that calculates the BMI and determines the weight classification.

Input

- Two integers: weight in kilograms and height in centimeters.

Output

- A single line containing the classification ("Underweight", "Normal weight", "Overweight", or "Obese").

Problem 7: Speed Limit Check

Time limit: 1 second

Memory limit: 64 MB

A driver must follow speed limits while driving. The following penalties apply if the driver exceeds the speed limit:

- Speed ≤ 60 : "No fine"
- $61 \leq \text{Speed} \leq 80$: "Small fine"
- Speed > 80: "Heavy fine"

Write a program that takes the speed of the driver and determines the fine.

Input

- A single integer representing the speed of the vehicle.

Output

- A single line containing "No fine", "Small fine", or "Heavy fine".

Problem 8: Bus Fare Calculation

Time limit: 1 second

Memory limit: 64 MB

A bus company charges fares based on the distance traveled:

- For distances up to 10 km, the fare is 20 units.
- For distances between 11 km and 50 km, the fare is 50 units.
- For distances above 50 km, the fare is 100 units.

Write a program that calculates the fare based on the distance traveled.

Input

- A single integer representing the distance traveled in kilometers.

Output

- A single integer representing the total fare.

Problem 9: Restaurant Discount

Time limit: 1 second

Memory limit: 64 MB

A restaurant offers discounts based on the total bill amount:

- If the bill is greater than 1000 units, a 10% discount is applied.

- If the bill is between 500 and 1000 units, a 5% discount is applied.
- No discount is applied if the bill is less than 500 units.

Write a program that takes the total bill amount and prints the final amount after applying any discount.

Input

- A single integer representing the total bill amount.

Output

- A single integer representing the final amount to be paid after applying any discount.

Problem 10: Fuel Efficiency

Time limit: 1 second

Memory limit: 64 MB

A car's fuel efficiency is measured in kilometers per liter (km/L). The car is classified based on its efficiency as follows:

- Efficiency < 10 km/L: "Poor"
- $10 \leq \text{Efficiency} < 15$ km/L: "Average"
- $15 \leq \text{Efficiency} < 20$ km/L: "Good"
- Efficiency ≥ 20 km/L: "Excellent"

Write a program that calculates the fuel efficiency of a car and prints the corresponding classification.

Input

- Two integers: the total distance traveled (in kilometers) and the fuel consumed (in liters).

Output

- A single line containing the classification ("Poor", "Average", "Good", or "Excellent").

These problem statements are realistic and use basic selection statements, focusing on decision-making logic. They follow the typical structure of programming contests like Codeforces.

40

You said:

Give 30 more questions

ChatGPT said:

ChatGPT

Here are 30 more problem-solving questions in a similar format, based on real-life scenarios using expressions and selection statements:

Problem 11: Temperature Classification

Time limit: 1 second

Memory limit: 64 MB

A weather station classifies the temperature as follows:

- Below 0°C: "Freezing"
- 0°C to 10°C: "Cold"
- 11°C to 20°C: "Cool"
- 21°C to 30°C: "Warm"
- Above 30°C: "Hot"

Write a program that classifies the temperature based on the input value.

Input

- A single integer representing the temperature in degrees Celsius.

Output

- A single line containing one of the classifications ("Freezing", "Cold", "Cool", "Warm", or "Hot").

Problem 12: Water Usage Bill

Time limit: 1 second

Memory limit: 64 MB

A household's water bill is calculated based on the amount of water used:

- Up to 30 cubic meters: 15 units per cubic meter.
- Between 31 and 100 cubic meters: 10 units per cubic meter.
- Above 100 cubic meters: 5 units per cubic meter.

Write a program that calculates the water bill based on the usage.

Input

- A single integer representing the amount of water used in cubic meters.

Output

- A single integer representing the total bill.

Problem 13: Store Discount

Time limit: 1 second

Memory limit: 64 MB

A store offers the following discounts:

- If the customer buys more than 10 items, they receive a 20% discount.
- If the customer buys between 5 and 10 items, they receive a 10% discount.
- No discount for fewer than 5 items.

Write a program that calculates the total price after applying the appropriate discount.

Input

- Two integers: the number of items purchased and the price per item.

Output

- A single integer representing the final price after the discount.

Problem 14: Movie Ticket Price

Time limit: 1 second

Memory limit: 64 MB

A cinema offers different ticket prices based on age:

- Below 12 years: 5 units.
- 12 to 60 years: 10 units.
- Above 60 years: 7 units.

Write a program that calculates the ticket price based on the age of the customer.

Input

- A single integer representing the age of the customer.

Output

- A single integer representing the ticket price.

Problem 15: Discounted Fuel Price

Time limit: 1 second

Memory limit: 64 MB

A fuel station offers discounts based on the quantity of fuel purchased:

- For purchases below 20 liters: no discount.
- For purchases between 20 and 40 liters: 5% discount.
- For purchases above 40 liters: 10% discount.

Write a program that calculates the final price of fuel after applying the discount.

Input

- Two integers: the number of liters of fuel purchased and the price per liter.

Output

- A single integer representing the final amount to be paid after applying the discount.

Problem 16: Overtime Pay

Time limit: 1 second

Memory limit: 64 MB

An employee is paid overtime based on the number of extra hours worked:

- Up to 10 hours: 15 units per hour.
- Between 11 and 20 hours: 20 units per hour.
- More than 20 hours: 25 units per hour.

Write a program that calculates the total overtime pay based on the hours worked.

Input

- A single integer representing the number of overtime hours worked.

Output

- A single integer representing the total overtime pay.

Problem 17: Library Fine

Time limit: 1 second

Memory limit: 64 MB

A library charges fines based on the number of days a book is overdue:

- Up to 7 days: 2 units per day.
- 8 to 30 days: 5 units per day.
- More than 30 days: 10 units per day.

Write a program that calculates the total fine based on the number of days a book is overdue.

Input

- A single integer representing the number of overdue days.

Output

- A single integer representing the total fine.

Problem 18: Tax Bracket

Time limit: 1 second

Memory limit: 64 MB

A person's income is taxed based on the following tax brackets:

- Income up to 50,000 units: 5% tax.
- Income between 50,001 and 100,000 units: 10% tax.
- Income above 100,000 units: 15% tax.

Write a program that calculates the tax based on a person's income.

Input

- A single integer representing the person's income.

Output

- A single integer representing the tax amount.

Problem 19: Toll Charge

Time limit: 1 second

Memory limit: 64 MB

A toll booth charges vehicles based on the number of axles:

- 2 axles: 10 units.

- 3 axles: 15 units.
- More than 3 axles: 20 units.

Write a program that calculates the toll charge based on the number of axles of a vehicle.

Input

- A single integer representing the number of axles.

Output

- A single integer representing the toll charge.

Problem 20: Car Insurance Premium

Time limit: 1 second

Memory limit: 64 MB

A car insurance company offers premiums based on the age of the car:

- For cars less than 5 years old: 5% of the car's value.
- For cars between 5 and 10 years old: 8% of the car's value.
- For cars older than 10 years: 10% of the car's value.

Write a program that calculates the annual insurance premium.

Input

- Two integers: the age of the car in years and the value of the car.

Output

- A single integer representing the annual insurance premium.

Problem 21: Elevator Capacity

Time limit: 1 second

Memory limit: 64 MB

An elevator has a maximum weight limit of 500 kg. If the total weight exceeds 500 kg, the elevator will not operate.

Write a program that takes the total weight of the people in the elevator and prints "Overload" if the weight exceeds 500 kg, otherwise "Safe to operate".

Input

- A single integer representing the total weight in the elevator.

Output

- A single line containing either "Overload" or "Safe to operate".

Problem 22: Bus Seat Allocation

Time limit: 1 second

Memory limit: 64 MB

A bus has a limited number of seats. The seats are divided as follows:

- First 10 seats are reserved for priority passengers.
- The next 20 seats are for general passengers.
- After that, standing passengers are allowed.

Write a program that checks the seat availability based on the number of passengers. Print "Priority", "General", or "Standing" based on the passenger number.

Input

- A single integer representing the passenger's position in line.

Output

- A single line containing either "Priority", "General", or "Standing".

Problem 23: Petrol Pump Price

Time limit: 1 second

Memory limit: 64 MB

A petrol pump offers a discount based on the day of the week:

- On Monday, there is a 5% discount.
- On other days, the price remains the same.

Write a program that takes the day of the week (as an integer: 1 for Monday, 2 for Tuesday, etc.) and the price of petrol, and calculates the price after applying the discount if applicable.

Input

- Two integers: the day of the week and the price of petrol per liter.

Output

- A single integer representing the final price per liter after the discount.

Problem 24: Simple Calculator

Time limit: 1 second

Memory limit: 64 MB

You are to implement a simple calculator that supports the following operations: addition, subtraction, multiplication, and division. The user provides two integers and an operator.

Write a program that performs the calculation based on the operator provided.

Input

- Two integers and a character representing the operator (+, -, *, or /).

Output

- A single integer representing the result of the calculation.

Problem 25: Traffic Light Timing

Time limit: 1 second

Memory limit: 64 MB

A traffic light operates on a timer:

- For the first 30 seconds, the light is green.
- For the next 10 seconds, the light is yellow.
- For the next 60 seconds, the light is red.

Write a program that determines the light's current color based on the number of seconds elapsed.

Input

- A single integer representing the number of seconds since the start of the cycle.

Output

- A single line containing either "Green", "Yellow", or "Red".

Problem 26: Hotel Room Pricing

Time limit: 1 second

Memory limit: 64 MB

A hotel offers three types of rooms:

- Standard: 100 units per night.
- Deluxe: 200 units per night.
- Suite: 500 units per night.

Write a program that calculates the total cost of the stay based on the number of nights and the room type.

Input

- Two integers: the number of nights and the room type (1 for Standard, 2 for Deluxe, 3 for Suite).

Output

- A single integer representing the total cost of the stay.

Problem 27: Electricity Bill Calculation

Time limit: 1 second

Memory limit: 64 MB

An electricity provider charges customers based on their monthly consumption of electricity:

- For consumption up to 100 units: 5 units per kWh.
- For consumption between 101 and 300 units: 8 units per kWh.
- For consumption above 300 units: 12 units per kWh.

Write a program that calculates the total electricity bill based on the consumption in kilowatt-hours (kWh).

Input

- A single integer representing the electricity consumption in kWh.

Output

- A single integer representing the total bill in units.

Problem 28: Student Grade Calculation

Time limit: 1 second

Memory limit: 64 MB

A school assigns grades to students based on their exam scores:

- If the score is ≥ 90 , the grade is "A".

- If the score is between 80 and 89, the grade is "B".
- If the score is between 70 and 79, the grade is "C".
- If the score is between 60 and 69, the grade is "D".
- If the score is less than 60, the grade is "F".

Write a program that calculates the grade based on the score.

Input

- A single integer representing the student's score.

Output

- A single character representing the grade ("A", "B", "C", "D", or "F").

Problem 29: Cinema Ticket Pricing

Time limit: 1 second

Memory limit: 64 MB

A cinema charges tickets based on the day of the week:

- On weekdays (Monday to Friday), the ticket price is 100 units.
- On weekends (Saturday and Sunday), the ticket price is 150 units.

Write a program that calculates the ticket price based on the day of the week.

Input

- A single integer representing the day of the week (1 for Monday, 7 for Sunday).

Output

- A single integer representing the ticket price.

Problem 30: Internet Service Provider

Time limit: 1 second

Memory limit: 64 MB

An internet service provider offers three types of packages:

- Package A: Up to 50 GB for 500 units.
- Package B: Up to 100 GB for 800 units.
- Package C: Unlimited data for 1200 units.

Write a program that calculates the monthly bill based on the chosen package.

Input

- A single integer representing the package type (1 for Package A, 2 for Package B, 3 for Package C).

Output

- A single integer representing the total bill.

Problem 31: Vehicle Speed Check

Time limit: 1 second

Memory limit: 64 MB

A speed camera issues fines based on the speed of a vehicle:

- Speed ≤ 60 km/h: No fine.
- Speed between 61 and 100 km/h: Fine of 100 units.
- Speed above 100 km/h: Fine of 200 units.

Write a program that determines the fine based on the vehicle's speed.

Input

- A single integer representing the speed of the vehicle in km/h.

Output

- A single integer representing the fine amount.

Problem 32: Flight Baggage Allowance

Time limit: 1 second

Memory limit: 64 MB

An airline allows free checked baggage up to a certain weight:

- Baggage ≤ 15 kg: No extra charge.
- Baggage between 16 and 30 kg: Charge of 50 units.
- Baggage above 30 kg: Charge of 100 units.

Write a program that calculates the extra charge based on the baggage weight.

Input

- A single integer representing the baggage weight in kilograms.

Output

- A single integer representing the extra charge.

Problem 33: Taxi Fare Based on Distance

Time limit: 1 second

Memory limit: 64 MB

A taxi company calculates fares based on the distance traveled:

- For distances ≤ 3 km: Flat fare of 30 units.
- For distances between 4 and 10 km: 10 units per km.
- For distances above 10 km: 8 units per km.

Write a program that calculates the taxi fare based on the distance traveled.

Input

- A single integer representing the distance traveled in kilometers.

Output

- A single integer representing the total fare.

Problem 34: Restaurant Bill with Tip

Time limit: 1 second

Memory limit: 64 MB

A restaurant calculates the tip based on the total bill:

- If the bill is less than 100 units: 5% tip.
- If the bill is between 100 and 500 units: 10% tip.
- If the bill is more than 500 units: 15% tip.

Write a program that calculates the total bill including the tip.

Input

- A single integer representing the bill before tip.

Output

- A single integer representing the total bill including the tip.

Problem 35: Car Loan Payment Calculation

Time limit: 1 second

Memory limit: 64 MB

A bank offers car loans with different interest rates based on the loan amount:

- Loan $\leq 200,000$ units: 5% interest.
- Loan between 200,001 and 500,000 units: 7% interest.
- Loan above 500,000 units: 10% interest.

Write a program that calculates the total interest to be paid on the loan.

Input

- A single integer representing the loan amount.

Output

- A single integer representing the total interest.

Problem 36: Fuel Cost Based on Distance

Time limit: 1 second

Memory limit: 64 MB

A car consumes 1 liter of fuel per 15 kilometers traveled, and the price of fuel is 80 units per liter. Calculate the fuel cost based on the distance traveled.

Input

- A single integer representing the distance traveled in kilometers.

Output

- A single integer representing the total fuel cost.

Problem 37: Mobile Data Usage Bill

Time limit: 1 second

Memory limit: 64 MB

A mobile network charges users based on their data usage:

- Up to 2 GB: 100 units per GB.
- Between 3 GB and 10 GB: 80 units per GB.
- Above 10 GB: 50 units per GB.

Write a program that calculates the total data usage bill.

Input

- A single integer representing the total data used in GB.

Output

- A single integer representing the total bill.

Problem 38: Laundry Service Charges

Time limit: 1 second

Memory limit: 64 MB

A laundry service charges for washing clothes based on the number of items:

- Up to 5 items: 20 units per item.
- 6 to 10 items: 15 units per item.
- Above 10 items: 10 units per item.

Write a program that calculates the total laundry bill based on the number of items.

Input

- A single integer representing the number of items.

Output

- A single integer representing the total bill.

Problem 39: Hotel Room Charge Calculation

Time limit: 1 second

Memory limit: 64 MB

A hotel charges for rooms based on the number of nights and the type of room:

- Standard room: 100 units per night.
- Deluxe room: 200 units per night.
- Suite: 500 units per night.

Write a program that calculates the total cost of staying at the hotel.

Input

- Two integers: the number of nights and the room type (1 for Standard, 2 for Deluxe, 3 for Suite).

Output

- A single integer representing the total cost.

Problem 40: Gym Membership Plan

Time limit: 1 second

Memory limit: 64 MB

A gym offers different membership plans:

- 1-month: 50 units.
- 6-months: 250 units.
- 12-months: 450 units.

Write a program that calculates the total cost of the gym membership based on the plan chosen.

Input

- A single integer representing the membership plan (1 for 1-month, 2 for 6-months, 3 for 12-months).

Output

- A single integer representing the total cost.