Answer ALL the questions. (Topic: Jumping Statement and Multiple Selection)

1. Implement the following decision table using i**f…else** Ladderstatement. Assume that the wind speed is given by the user in miles per hour. Use **#define** preprocessor directive to give meaningful name to significant constant. (1 mile = 1.60934 km).

|  |  |  |
| --- | --- | --- |
| Category | Wind Speed | Potential Damages |
| One | 119–153 km/h | Moderate damage. Roofs severely stripped. |
| Two | 154–177 km/h | Considerable damage. Roofs torn off. |
| Three | 178–208 km/h | Severe damage to houses and large buildings. |
| Four | 209–251 km/h | Extreme damage. Whole frame houses completely leveled. |
| Five | ≥252 km/h | Total Destruction. Tall buildings collapse. |

Is it possible to build the program using the Switch case statement?

1. Write a program that reports the contents of a compressed-gas cylinder based on the first letter of the cylinder’s colour. The program input is a character representing the observed colour of the cylinder: ‘R’ or ‘r’ for Red, ‘G’ or ‘g’ for grey and so on. Cylinder colours and associated contents are as follows:

Red ammonia

Blue carbon monoxide Grey hydrogen

White oxygen

Your program should respond to input of a letter other than the first letters of the given colours with the message, Contents unknown.

[Build 2 different programs using a) Switch case and b) if…else Ladder]

1. Based on Question 1 and 2, what are the similarities and differences between if…else Ladder and switch case.
2. Write C program that allows user to choose the number of drink cans and make selections on type of drinks [example🡪Type 1:Coke 2:Sprite 3:Pepsi] based on the flowchart below: (please use goto statement for looping part and switch case statement for the selection)





Declare

n=1, choice, numcan



Print

“Enter the number of drink can”



Read

numcan

Print

“Thank you for your purchases. Please buy again.”

n<=numcan

FALSE





TRUE

choice=1

Print

“You have selected Coke”

TRUE



choice=2

Print

“You have selected Sprite” “Plus

FALSE

TRUE



n++

FALSE

Print

“You have selected Pepsi”

choice=3

TRUE



FALSE

Print

“Wrong selection. No refund is given.”

TRUE

Defaults



FALSE



1. Write a C program to calculate the parking fare for customers who park their vehicles in a parking lot. The management uses two different rates for each type of vehicle, as shown below:

|  |  |  |  |
| --- | --- | --- | --- |
| Vehicle | Class | First Rate | Second Rate |
| Car | 1 | $1.00/hour first 3 hour | $1.50/hour after 3 hours |
| Truck | 2 | $2.00/hour first 2 hour | $2.50/hour after 2 hours |
| Bus | 3 | $2.50/hour for first hour | $3.70/hour after first hours |

The program must prompt the user to enter the following information as below.

* 1. The type of vehicle within its class.
  2. An integer between 0 and 24 showing the hour the vehicle entered the parking lot.
  3. An integer between 0 and 60 showing the minute the vehicle entered the parking lot.
  4. An integer between 0 and 24 showing the hour the vehicle left the parking lot.
  5. An integer between 0 and 60 showing the minute the vehicle left the parking lot.

To calculate the time spent in the parking lot, use the following algorithm.

1. Compare the minute portion of the leaving and entering time. If the first one is smaller than the second,

(i.i) Add 60 to the minute portion of the leaving time. (i.ii) Subtract 1 from the hour portion of the leaving time.

1. Subtract the hour potion.
2. Subtract the minute portion.
3. Since there are no fractional hour charges, the program must also round the parking time up to the next hour before calculating the charge. The program should use the **switch** statement to distinguish between the different types of vehicles.

The sample output files are shown below.

Enter the class of vehicle? 1

|  |  |  |
| --- | --- | --- |
| Hour vehicle entered lot | (0 - 24)? | 14 |
| Minute vehicle entered lot | (0 - 60)? | 23 |
| Hour vehicle left lot | (0 - 24)? | 18 |
| Minute vehicle left lot  Class of vehicle : 1 | (0 - 60)? | 8 |

TIME-IN 14 : 23

TIME-OUT 18 : 8

-------- PARKING TIME 3 : 45

ROUNDED PARKING TIME 4 hours TOTAL CHARGES RM4.50

1. Write C Program to calculate the sum and average of 10 integer positive numbers. If the user enters number as a negative number, a program will automatically skip from the calculation, then the program will display sum and average.
2. Write program C to print the number and sum of even numbers from 1 to 100 without using the LOOP statement.