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| 1 | Any year is entered through the keyboard, write a program to determine whether the year is leap or not. Use the logical operators **&&** and **||**. | |
| 2 | Any character is entered through the keyboard, write a program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.  The following table shows the range of ASCII values for various characters. | |
| A – Z  a – z  0 – 9  special symbols | 65 – 90  97 – 122  48 – 57  0 - 47, 58 - 64, 91 - 96, 123 - 127 |
| 3 | An Insurance company follows following rules to calculate premium.  (1) If a person’s health is excellent and the person is between 25 and 35 years of age and lives in a city and is a male then the premium is Rs. 4 per thousand and his policy amount cannot exceed Rs. 2 lakhs.  (2) If a person satisfies all the above conditions except that the sex is female then the premium is Rs. 3 per thousand and her policy amount cannot exceed Rs. 1 lakh.  (3) If a person’s health is poor and the person is between 25 and 35 years of age and lives in a village and is a male then the premium is Rs. 6 per thousand and his policy cannot exceed Rs. 10,000.  (4) In all other cases the person is not insured.  Write a program to output whether the person should be insured or not, his/her premium rate and maximum amount for which he/she can be insured. | |
| 4 | A certain grade of steel is graded according to the following conditions:  (i) Hardness must be greater than 50  (ii) Carbon content must be less than 0.7  (iii) Tensile strength must be greater than 5600  The grades are as follows:  Grade is 10 if all three conditions are met  Grade is 9 if conditions (i) and (ii) are met  Grade is 8 if conditions (ii) and (iii) are met  Grade is 7 if conditions (i) and (iii) are met  Grade is 6 if only one condition is met  Grade is 5 if none of the conditions are met  Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel. | |
| 5 | A library charges a fine for every book returned late. For first 5 days the fine is 50 paise, for 6-10 days fine is one rupee and above 10 days fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message. | |
| 6 | If the three sides of a triangle are entered through the keyboard, write a program to check whether the triangle is valid or not. The triangle is valid if the sum of two sides is greater than the largest of the three sides.  If the three sides of a triangle are entered through the keyboard, write a program to check whether the triangle is isosceles, equilateral, scalene or right angled triangle.  In a company, worker efficiency is determined on the basis of the time required for a worker to complete a particular job. If the time taken by the worker is between 2 – 3 hours, then the worker is said to be highly efficient. If the time required by the worker is between 3 – 4 hours, then the worker is ordered to improve speed. If the time taken is between 4 – 5 hours, the worker is given training to improve his speed, and if the time taken by the worker is more than 5 hours, then the worker has to leave the company. If the time taken by the worker is input through the keyboard, find the efficiency of the worker. | |