***Switch case***

1. Write a program to print day of week name using switch case.
2. [Write a program to input month number and print number of days in that month.](https://codeforwin.org/2015/05/c-program-to-print-number-of-days-in-month.html)
3. Write a program to check whether an alphabet is vowel or consonant using switch case.
4. Write a program to find maximum between two numbers using switch case.
5. Write a program to check whether a number is even or odd using switch case.
6. Write a program to check whether a number is positive, negative or zero using switch case.
7. Write a program to create Simple Calculator using switch case.
8. Write a program to take grade from user and print message accordingly.

|  |  |
| --- | --- |
| GRADE | MESSAGE |
| A | Excellent |
| B | Very Good |
| C and D | You have passed |
| F | Better try again |
| Default | Enter valid grade |

9.Write a program to check whether entered character is alphabet, digit or special character.

10.Write a menu driven program which has following options:

1. Factorial of a number
2. Prime or not
3. Odd or Even
4. Exit

Once a menu item is selected the appropriate action should be taken. Unless the user selects the ‘Exit’ option the program should continue to work.

11.Write a C program to find the grace marks for a student using switch. The user should enter the class obtained by the student and the number of subjects he has failed in. Use the following logic:

-- If the student gets first class and the number of subjects, he failed in is greater than 3, then he does not get any grace. Otherwise, the grace is of 5 marks per subject.

-- If the student gets second class and the number of subjects, he failed in is greater than 2, then he does not get any grace. Otherwise, the grace is of 4 marks per subject.

-- If the student gets third class and the number of subjects, he failed in is greater than 1, then he does not get any grace. Otherwise, the grace is of 5 marks per subject.

***if else***

1. Write a program to find minimum between two numbers.
2. Write a program to find maximum between two numbers.
3. Write a program to check whether number is even or odd.
4. Write a program to check whether number is positive or negative.
5. Write a program to find absolute value of a number.
6. Write a program to check whether number is divisible by 4 or not.
7. Write a program to check whether number is divisible by 3 or divisible by 4.
8. Write a program to check whether number is divisible by 5 and 11 or not.
9. Write a program to take Age from user. Display message accordingly
   1. Age > 18 then “License will be granted”
   2. Age <= 18 then “License will not be granted”
10. Write a program to take Balance from user. Display message accordingly
    1. Balance > 1000 then “You can withdraw money”
    2. Balance <= 1000 then “You can’t withdraw money”
11. Write a program to take gender (M=Male, F=Female) and Age input through keyboard. Display message accordingly
    1. Age>=18 and Gender = ‘F’ then “You are eligible for marriage”
    2. Age>=21 and Gender = ‘M’ then “You are eligible for marriage”
    3. In all other cases “You are not eligible for marriage”
12. A company insures its driver in the following cases:
    * + If the driver is married
      + If the driver is unmarried, male and above 30 years of age
      + If the driver is unmarried, female and above 25 years of age
    1. In all other cases the driver is not insured. If the marital status (M=Married, U=Unmarried), gender (M=Male, F=Female) and age of driver are inputs, write a program to determine whether the driver should be insured or not.
13. Write a program to check whether entered character is alphabet or not.
14. Write a program to check whether entered letter is vowel or consonant.
15. Write a program to check whether entered alphabet is lowercase letter or uppercase letter.
16. While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through keyboard, write a program to calculate total expenses.
17. In a company an employee is paid as under:
    1. --If his Basic Salary (BS) is less than Rs.1500, then HRA = 10% of basic salary and DA = 90% of basic salary.
    2. --If his Basic Salary is equal to or above Rs.1500, then HRA = Rs. 500 of basic salary and DA = 98% of basic salary.
    3. --If the employee’s salary is input through the keyboard write a program to find his Gross Salary (Gross Salary = BS + HRA + DA).
18. Write a program to check whether a triangle is valid or not. Take three angles as input from user (If sum of the angles of triangle=180 then it is a valid triangle)
19. Given three points (x1, y1), (x2, y2) and (x3, y3), write a C program to check if all the three points fall on one straight line.
20. Write a program to count number of notes in amount OR to count minimum number of denominations for given amount.

***Nested if…else***

1. Write a program to check whether number is positive, negative or zero.
2. Write a program to check whether number is odd or even. If even then check whether divisible by 4 or not. If odd check whether divisible by 5 or not.
3. Write a program to find maximum between three numbers.(Use only relational operators)
4. Write a program to find minimum between three numbers. (Use only relational operators)
5. Write a program to check whether three numbers are equal or not.
6. Write a program to compare three numbers. Print message accordingly whether equal or print greater number and smaller number.
7. Write a program to check equal numbers out of three numbers entered by user.
8. Write a program to check whether year is leap year or not.
9. Write a program to check whether a triangle is valid or not. Take three sides from user. (If sum of two sides of triangle is greater than largest of three sides, then it is valid triangle)
10. Write a program to check whether entered character is alphabet or not. If yes, check whether it is a vowel or consonant.
11. Write a program to check whether entered character is alphabet or not. If yes, check whether it is uppercase letter or lowercase letter and whether it is a vowel or consonant.

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*done till 28/3/2023\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

***if…else…if Ladder***

1. Write a program to find maximum (or minimum) between three numbers.nb
2. Write a program to find maximum(or minimum) between four numbers.
3. Write a program to check whether number is positive, negative or zero.
4. If the lengths of three sides of a triangle are entered through keyboard, [write a program to check whether it is equilateral, isosceles, scalene triangle or right angled triangle.](https://codeforwin.org/2015/05/c-program-to-check-whether-triangle-is-equilateral-isosceles-scalene.html) (Equilateral=all sides equal, Isosceles=2 sides equal, Scalene=No sides equal)
5. [Write a program to input week number and print weekday](https://codeforwin.org/2015/05/c-program-to-print-week-name.html).(Hint: if 1 then Monday)
6. [If month number (1 to 12) is input through keyboard, write a program that prints corresponding month.](https://codeforwin.org/2015/05/c-program-to-print-week-name.html)
7. If cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.
8. Write a program to check whether entered character is alphabet, digit or special character.
9. Write a program to convert user entered character to its opposite case. Program should also flash an error message if the character entered by user is not an alphabet.
10. Given the coordinates (x, y) of centre of a circle and its radius, write a program which will determine whether a point lies inside the circle, on the circle or outside the circle. (Hint: Use sqrt() and pow() functions)
11. Given a point (x, y), write a program to find out if it lies on the X-axis, Y-axis or origin.
12. According to the Gregorian calendar, it was Monday on the date 01/01/01. If any year is input through the keyboard, write a program to find out what is the day on 1st January of this year.
13. Write a program to validate date entered by user in format dd/mm/yyyy
14. Enter date in dd/mm/yyyy format. Write a program to print total number of days in month and the month in words. For example, if date is entered as 23/07/2009 then display the message as – “July has 31 days”. Your program should take care of leap years.
15. Write a program to create Simple Calculator. Take two numbers and Symbol input through keyboard and perform operation accordingly.

-- Symbol ‘+’ for Addition

-- Symbol ‘-’ for Subtraction

-- Symbol ‘\*’ for Multiplication

-- Symbol ‘/’ for Division

16.Write a program to print grade of student based on marks. Take marks from user.

|  |  |
| --- | --- |
| MARKS | GRADE |
| Between 75 to 100 | A |
| Between 45 to 74 | B |
| Between 35 to 44 | C |
| Less than 35 | D |

17.If a character is entered through the keyboard, write a program to determine whether the character is capital letter, small letter, digit or special symbol. The following table shows ASCII values of various characters:

|  |  |
| --- | --- |
| CHARACTER | ASCII values |
| A – Z | 65 – 90 |
| a – z | 97 – 122 |
| 0 – 9 | 48 – 57 |
| Special Symbols | 1. - 47, 58 – 64, 91 – 96, 123 -127 |

18.Write a program to accept an empID and deptNo as numeric data and designCode as character data. Display the entered data with proper messages.

|  |  |  |  |
| --- | --- | --- | --- |
| DEPARTMENT NO. | DEPARTMENT NAME | DESIGNATION CODE | DESIGNATION |
| 10 | Purchase | ‘M’ | Manager |
| 20 | Sales | ‘A’ | Analyst |
| 30 | Production | ‘W’ | Worker |
| 40 | Marketing | ‘S’ | Salesperson |
| 50 | Accounts | ‘C’ | Clerk |

If empId=101, designCode=’M’ and deptCode=10 then the message displayed should be like this – “Employee with id 101 works in PURCHASE department as “MANAGER”

19.If Gender (M or F), Years of Service and Qualification (G or P) is entered through keyboard, write a program to print salary as per the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| GENDER  (M=Male, F=Female) | YEARS OF SERVICE | QUALIFICATION  (G=Graduate, P=PostGraduate) | SALARY |
| MALE | >=10 | Post-Graduate | 11000 |
| >=10 | Graduate | 10000 |
| <10 | Post-Graduate | 10000 |
| <10 | Graduate | 7000 |
| FEMALE | >=10 | Post-Graduate | 12000 |
| >=10 | Graduate | 9000 |
| <10 | Post-Graduate | 10000 |
| <10 | Graduate | 6000 |

20.The Body Mass Index (BMI) is defined as ratio of the weight of a person (in kgs) to the square of the height (in m). Write a program that receives weight and height, calculates the BMI and reports the BMI category as per the table:

|  |  |
| --- | --- |
| BMI Category | BMI |
| Starvation | < 15 |
| Anorexic | 15.1 to 17.5 |
| Underweight | 17.6 to 18.5 |
| Ideal | 18.6 to 24.9 |
| Overweight | 25 to 25.9 |
| Obese | 30 to 30.9 |
| Morbidly Obese | >=40 |

21.Write a program for calculating bonus of employee depending on salary. Print bonus and net salary.

Bonus = Salary\*(Bonus percentage/100)

Net salary = Salary + Bonus

|  |  |
| --- | --- |
| SALARY | Bonus in percentage |
| Greater than 50000 | 20% |
| 40001 to 50000 | 15% |
| 30001 to 40000 | 10% |
| Less than 30000 | 5% |

22.Write a program to take Basic Salary (BS) from user and calculate Gross Salary (GS) according to given conditions:

|  |  |  |
| --- | --- | --- |
| BASIC SALARY | HRA | DA |
| Less than 10000 | 20% | 80% |
| 10001 to 20000 | 25% | 90% |
| Greater than 20001 | 30% | 95% |

GS = BS + HRA + DA (Use float values and print Gross Salary upto 2 decimal places)

23.A certain grade of steel is graded according to the following conditions:

-- Hardness must be greater than 50

-- Carbon content must be less than 0.7

-- 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.

24.Write a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer (Marks are out of 100). Calculate percentage and grade and print according to following: Percentage >= 90% : Grade A

Percentage >= 80% : Grade B

Percentage >= 70% : Grade C

Percentage >= 60% : Grade D

Percentage >= 40% : Grade E

Percentage < 40% : Grade F

***Conditional Operator***

1. Write a program to find maximum of two numbers.
2. Write a program to find minimum between two numbers.
3. Write a program to check whether number is even or odd.
4. Write a program to check whether number is positive or negative.
5. Write a program to check whether year is leap year or not
6. Write a program to find absolute value of a number.
7. Write a program to check whether entered alphabet is lowercase letter or uppercase letter.
8. Write a program to check whether entered character is special symbol or not.
9. Write a program to find greatest of the three numbers entered through keyboard.
10. Write a program which takes salary from user and accordingly print designation.

|  |  |
| --- | --- |
| SALARY | DESIGNATION |
| 25001 to 40000 | Manager |
| 15001 to 25000 | Accountant |
| 8000 to 15000 | Clerk |