1.

```
#include <stdio.h>

int main() {
    // Print the user's details
    printf("Name: John Doe\n");
    printf("Date of Birth: January 1, 1990\n");
    printf("Mobile Number: +1-234-567-8901\n");

    return 0;
}
```

2.

```
#include <stdio.h>

int main() {
    // Variables to store the prices
    float iphonePrice, coverCasePrice, totalBill;

    // Read the price of the iPhone
    printf("Enter the price of the iPhone: $");
    scanf("%f", &iphonePrice);

    // Read the price of the cover case
    printf("Enter the price of the cover case: $");
    scanf("%f", &coverCasePrice);

    // Calculate the total bill
    totalBill = iphonePrice + coverCasePrice;

    // Print the total bill
    printf("The total bill is: $%.2f\n", totalBill);

    return 0;
}
```

3.

```
#include <stdio.h>

int main() {
   // Variables to store the bill amount, amount paid, and balance
   float billAmount, amountPaid, balanceAmount;

   // Read the bill amount
   printf("Enter the bill amount: $");
   scanf("%f", &billAmount);

   // Read the amount paid by the customer
   printf("Enter the amount paid by the customer: $");
   scanf("%f", &amountPaid);

   // Calculate the balance amount
   balanceAmount = amountPaid - billAmount;

   // Print the balance amount
   if (balanceAmount < 0) {
      printf("The customer still owes: $%.2f\n", -balanceAmount);
   } else {
      printf("The balance amount to be returned to the customer is: $%.2f\n", balanceAmount);
   }

   return 0;
}
```

4.

```
#include <stdio.h>

int main() {
   // Variables to store marks of each subject
   float english, sanskrit, maths, physics, chemistry;
   float total, average;

   // Read marks for each subject
   printf("Enter marks for English: ");
   scanf("%f", &english);

   printf("Enter marks for Sanskrit: ");
   scanf("%f", &sanskrit);

   printf("Enter marks for Maths: ");
   scanf("%f", &maths);

   printf("Enter marks for Physics: ");
   scanf("%f", &physics);

   printf("Enter marks for Chemistry: ");
   scanf("%f", &chemistry);

   // Calculate total and average
   total = english + sanskrit + maths + physics + chemistry;
   average = total / 5;

   // Print total and average
   printf("Total marks: %.2f\n", total);
   printf("Average marks: %.2f\n", average);

  return0;
   }
```

5

```
#include <stdio.h>

int main() {
    // Variables to store the basic salary, gross salary, and net salary
    float basicSalary, HRA, DA, PF, PT, grossSalary, netSalary;

    // Read the basic salary
    printf("Enter the basic salary of the employee: $");
    scanf("%f", &basicSalary);

    // Calculate HRA, DA, PF, and PT
    HRA = 0.20 * basicSalary;
    DA = 0.10 * basicSalary;
    PF = 0.12 * basicSalary;
    PT = 0.02 * basicSalary;

    // Calculate gross salary
    grossSalary = basicSalary + HRA + DA;

    // Calculate net salary
    netSalary = grossSalary - (PF + PT);

    // Print gross salary and net salary
    printf("Gross Salary: $%.2f\n", grossSalary);
    printf("Net Salary: $%.2f\n", netSalary);

    return 0;
}
```

6

```c
#include <stdio.h>

int main() {
    // Variables to store the values of A and B
    int A, B;

    // Read the values of A and B
    printf("Enter the value of A: ");
    scanf("%d", &A);
    printf("Enter the value of B: ");
    scanf("%d", &B);

    // Swapping values using bitwise XOR
    A = A ^ B;
    B = A ^ B;
    A = A ^ B;

    // Print the swapped values
    printf("After swapping:\n");
    printf("Value of A: %d\n", A);
    printf("Value of B: %d\n", B);

    return 0;
}
```

7.

```
#include <stdio.h>

int main() {
    // Variable to store the flying time in minutes
    int flyingTimeInMinutes;
    int hours, minutes;

    // Read the flying time in minutes
    printf("Enter the flying time from Hyderabad to Singapore in minutes: ");
    scanf("%d", &flyingTimeInMinutes);

    // Calculate hours and minutes
    hours = flyingTimeInMinutes / 60;
    minutes = flyingTimeInMinutes % 60;

    // Print the result
    printf("Flying time is: %d hours and %d minutes\n", hours, minutes);

    return 0;
}
```

8.

```
#include <stdio.h>

int main() {
    // Variables to store input days and converted values
    int inputDays;
    int years, months, weeks, days;

    // Read the number of days from the user
    printf("Enter the number of days: ");
    scanf("%d", &inputDays);

    // Calculate years
    years = inputDays / 365;
    inputDays = inputDays % 365;

    // Calculate months
    months = inputDays / 30;
    inputDays = inputDays % 30;

    // Calculate weeks
    weeks = inputDays / 7;
    days = inputDays % 7;

    // Print the result
    printf("Equivalent to: %d years, %d months, %d weeks, and %d days\n", years, months, weeks, days);

    return 0;
}
```

9.

```
#include <stdio.h>

int main() {
    // Variables to store the three characters
    char char1, char2, char3;

    // Read three characters from the user
    printf("Enter first character: ");
    scanf(" %c", &char1); // The space before %c is to skip any whitespace
    printf("Enter second character: ");
    scanf(" %c", &char2);
    printf("Enter third character: ");
    scanf(" %c", &char3);

    // Print the characters in reverse order
    printf("Characters in reverse order: %c %c %c\n", char3, char2, char1);

    return 0;
}
```

10.

```
#include <stdio.h>

int main() {
    // Variables to store full name, gender, and native place
    char fullName[100];
    char gender[10];
    char nativePlace[100];

    // Read full name from the user
    printf("Enter your full name: ");
    fgets(fullName, sizeof(fullName), stdin);

    // Read gender from the user
    printf("Enter your gender: ");
    fgets(gender, sizeof(gender), stdin);

    // Read native place from the user
    printf("Enter your native place: ");
    fgets(nativePlace, sizeof(nativePlace), stdin);

    // Display the information
    printf("\n--- Information ---\n");
    printf("Full Name: %s", fullName);
    printf("Gender: %s", gender);
    printf("Native Place: %s", nativePlace);

    return 0;
}
```

11.

```
#include <stdio.h>
#include <string.h>

int main() {
    // Variables to store roll number, name, gender, and height
    int rollNo;
    char name[100];
    char gender;
    float height;

    // Read roll number from user
    printf("Enter roll number: ");
    scanf("%d", &rollNo);
    getchar(); // Consume newline character left by scanf

    // Read name from user
    printf("Enter name: ");
    fgets(name, sizeof(name), stdin);
    name[strcspn(name, "\n")] = '\0'; // Remove newline character from fgets input

    // Read gender from user
    printf("Enter gender (M/F): ");
    scanf(" %c", &gender);

    // Read height from user
    printf("Enter height (in meters): ");
    scanf("%f", &height);

    // Display size of memory occupied by each variable
    printf("\nSize of memory occupied:\n");
    printf("Roll number (int): %lu bytes\n", sizeof(rollNo));
```

```
    printf("Name (char[]): %lu bytes\n", sizeof(name));
    printf("Gender (char): %lu bytes\n", sizeof(gender));
    printf("Height (float): %lu bytes\n", sizeof(height));

    return 0;
}
```

12.

```
#include <stdio.h>
int main() {
    char capitalLetter, lowercaseLetter;
    // Read a capital letter from the user
    printf("Enter a capital letter: ");
    scanf(" %c", &capitalLetter);
    // Convert to lowercase
    lowercaseLetter = capitalLetter + 32; // ASCII difference between 'A' and 'a' is 32
    // Display the lowercase letter
    printf("The lowercase equivalent is: %c\n", lowercaseLetter);
    return 0;
}
```

13.

```
#include <stdio.h>

int main() {
    float temperatureFahrenheit, temperatureCelsius;

    // Read temperature in Fahrenheit from user
    printf("Enter temperature in Fahrenheit: ");
    scanf("%f", &temperatureFahrenheit);

    // Convert Fahrenheit to Celsius
    temperatureCelsius = (5.0 / 9.0) * (temperatureFahrenheit - 32);

    // Display the converted temperature
    printf("Temperature in Celsius: %.2f\n", temperatureCelsius);

    return 0;
}
```

14.

```
#include <stdio.h>

int main() {
    float rupees;
    int paise;

    // Read amount in Rupees from user
    printf("Enter amount in Rupees: ");
    scanf("%f", &rupees);

    // Convert Rupees to Paise
    paise = rupees * 100;

    // Display the converted amount in Paise
    printf("Equivalent amount in Paise: %d\n", paise);

    return 0;
}
```

15.

```
#include <stdio.h>
int main() {
    float a, b;
    float result;

    // Read values of a and b from user
    printf("Enter the value of a: ");
    scanf("%f", &a);

    printf("Enter the value of b: ");
    scanf("%f", &b);

    // Evaluate (a + b)^2
    result = (a + b) * (a + b);

    // Display the result
    printf("(a + b)^2 = %.2f\n", result);

    return 0;
}
```

16.

```
 #include <stdio.h>
#define PI 3.14159  // Define the value of pi

int main() {
   float radius;
   float area;

   // Read the radius from the user
   printf("Enter the radius of the circle: ");
   scanf("%f", &radius);

   // Calculate the area of the circle
   area = PI * radius * radius;

   // Display the calculated area
   printf("Area of the circle with radius %.2f = %.2f square units\n", radius, area);

   return 0;
}
```

17.

```
#include <stdio.h>

int main() {
    int presentMonthReading, lastMonthReading;
    int unitsConsumed;
    float electricityCharge;

    // Read present month reading from user
    printf("Enter present month reading (in units): ");
    scanf("%d", &presentMonthReading);

    // Read last month reading from user
    printf("Enter last month reading (in units): ");
    scanf("%d", &lastMonthReading);

    // Calculate units consumed
    unitsConsumed = presentMonthReading - lastMonthReading;

    // Calculate electricity charge (considering a hypothetical rate per unit)
    // For example, assuming a rate of Rs. 5 per unit
    electricityCharge = unitsConsumed * 5.0; // 5.0 to ensure floating-point calculation

    // Display the calculated units consumed and electricity charge
    printf("Units consumed: %d\n", unitsConsumed);
    printf("Electricity charge: Rs. %.2f\n", electricityCharge);

    return 0;
}
```

18.

```
#include <stdio.h>

int main() {
    float kilometers, meters;

    // Read total distance in kilometers from user
    printf("Enter total distance traveled in kilometers: ");
    scanf("%f", &kilometers);

    // Convert kilometers to meters
    meters = kilometers * 1000;

    // Display the converted distance in meters
    printf("Equivalent distance in meters: %.2f meters\n", meters);

    return 0;
}
```

19.

```
#include <stdio.h>

int main() {
   float totalBill, tipPercentage, totalAmount;
   int numFriends;

   // Read total bill amount from user
   printf("Enter total bill amount: ");
   scanf("%f", &totalBill);

   // Read tip percentage from user
   printf("Enter tip percentage (e.g., 10 for 10%%): ");
   scanf("%f", &tipPercentage);

   // Read number of friends
   printf("Enter number of friends: ");
   scanf("%d", &numFriends);

   // Calculate total amount including tip
   totalAmount = totalBill + (totalBill * (tipPercentage / 100));

   // Calculate amount each friend needs to pay
   float amountPerFriend = totalAmount / numFriends;

   // Display the amount each friend needs to pay
   printf("Each friend needs to pay: Rs. %.2f\n", amountPerFriend);

   return 0;
}
```

20.

```
#include <stdio.h>

int main() {
    int age;

    // Read age from user
    printf("Enter your age: ");
    scanf("%d", &age);

    // Check eligibility to vote
    if (age >= 18) {
        printf("Congratulations! You are eligible to cast your vote.\n");
    } else {
        printf("Sorry, you are not eligible to cast your vote yet.\n");
    }

    return 0;
}
```

21.

```
#include <stdio.h>

int main() {
    float samsungPrice, vivoPrice;

    // Read price of Samsung phone from user
    printf("Enter price of Samsung phone: ");
    scanf("%f", &samsungPrice);

    // Read price of Vivo mobile from user
    printf("Enter price of Vivo mobile: ");
    scanf("%f", &vivoPrice);

    // Compare prices and display the result
    if (samsungPrice > vivoPrice) {
        printf("Samsung phone is costlier.\n");
    } else if (vivoPrice > samsungPrice) {
        printf("Vivo mobile is costlier.\n");
    } else {
        printf("Both Samsung phone and Vivo mobile are at the same price.\n");
    }

    return 0;
}
```

22.

```
#include <stdio.h>

int main() {
    float originalPrice, discountPercentage, discountAmount, finalAmount;

    // Read original price from user
    printf("Enter the original price: ");
    scanf("%f", &originalPrice);

    // Read discount percentage from user
    printf("Enter the discount percentage: ");
    scanf("%f", &discountPercentage);

    // Calculate discount amount
    discountAmount = (discountPercentage / 100) * originalPrice;

    // Calculate final amount after discount
    finalAmount = originalPrice - discountAmount;

    // Display the calculated discount and final amount
    printf("Discount amount: Rs. %.2f\n", discountAmount);
    printf("Final amount after discount: Rs. %.2f\n", finalAmount);

    return 0;
}
```

23.

```
#include <stdio.h>

int main() {
    char name1[50], name2[50];
    int age1, age2;

    // Read details of first friend
    printf("Enter name of first friend: ");
    scanf("%s", name1);

    printf("Enter age of first friend: ");
    scanf("%d", &age1);

    // Read details of second friend
    printf("Enter name of second friend: ");
    scanf("%s", name2);

    printf("Enter age of second friend: ");
    scanf("%d", &age2);

    // Compare ages and display results
    if (age1 > age2) {
        printf("%s is older than %s.\n", name1, name2);
    } else if (age2 > age1) {
        printf("%s is older than %s.\n", name2, name1);
    } else {
        printf("%s and %s are of the same age.\n", name1, name2);
    }

    return 0;
}
```

24.

```
#include <stdio.h>

int main() {
   int number;

   // Read number from user
   printf("Enter a number: ");
   scanf("%d", &number);

   // Check if the number is positive, negative, or zero
   if (number > 0) {
      printf("%d is a positive number.\n", number);
   } else if (number < 0) {
      printf("%d is a negative number.\n", number);
   } else {
      printf("The number is zero.\n");
   }

   return 0;
}
```

25.

```
#include <stdio.h>

int main() {
    float num1, num2, num3, num4;
    float largest;

    // Read four numbers from the user
    printf("Enter four numbers: ");
    scanf("%f %f %f %f", &num1, &num2, &num3, &num4);

    // Assume num1 is the largest initially
    largest = num1;

    // Compare with num2
    if (num2 > largest) {
        largest = num2;
    }

    // Compare with num3
    if (num3 > largest) {
        largest = num3;
    }

    // Compare with num4
    if (num4 > largest) {
        largest = num4;
    }

    // Display the largest number
    printf("The largest number is %.2f\n", largest);

    return 0;
}
```

26. #include <stdio.h>

```
int main() {
    int number;

    // Read number from user
    printf("Enter a number: ");
    scanf("%d", &number);

    // Check if the number is divisible by both 3 and 5
    if (number % 3 == 0 && number % 5 == 0) {
        printf("%d is divisible by both 3 and 5.\n", number);
    } else {
        printf("%d is not divisible by both 3 and 5.\n", number);
    }

    return 0;
}
```

27.

```
#include <stdio.h>


int main() {
    float reynoldsPrice, montexPrice, parkerPrice;

    // Read prices of pens from user
    printf("Enter price of Reynolds pen: ");
    scanf("%f", &reynoldsPrice);

    printf("Enter price of Montex pen: ");
    scanf("%f", &montexPrice);

    printf("Enter price of Parker pen: ");
    scanf("%f", &parkerPrice);

    // Assume Reynolds pen is initially the costliest
    float costliestPrice = reynoldsPrice;
    char costliestPen[20] = "Reynolds";

    // Compare with Montex pen
    if (montexPrice > costliestPrice) {
        costliestPrice = montexPrice;
        strcpy(costliestPen, "Montex");
    }

    // Compare with Parker pen
    if (parkerPrice > costliestPrice) {
        costliestPrice = parkerPrice;
```

```
        strcpy(costliestPen, "Parker");
    }

    // Display the costliest pen
    printf("The costliest pen is %s with price %.2f\n", costliestPen, costliestPrice);

    return 0;
}
```

28. #include <stdio.h>

```
int main() {
   float num1, num2, num3;

   // Read three numbers from user
   printf("Enter three numbers: ");
   scanf("%f %f %f", &num1, &num2, &num3);

   // Compare and arrange the numbers in ascending order using if-else statements
   if (num1 <= num2 && num1 <= num3) {
      if (num2 <= num3) {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num1, num2, num3);
      } else {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num1, num3, num2);
      }
   } else if (num2 <= num1 && num2 <= num3) {
      if (num1 <= num3) {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num2, num1, num3);
      } else {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num2, num3, num1);
      }
   } else { // num3 is smallest
      if (num1 <= num2) {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num3, num1, num2);
      } else {
         printf("Numbers in ascending order: %.2f %.2f %.2f\n", num3, num2, num1);
      }
   }

   return 0;

    }
```

29. #include <stdio.h>

```
int main() {
    float marksC, marksCCP, marksJava;
    float total, average;
    char grade;

    // Read marks from user
    printf("Enter marks for C: ");
    scanf("%f", &marksC);

    printf("Enter marks for CCP: ");
    scanf("%f", &marksCCP);

    printf("Enter marks for Java: ");
    scanf("%f", &marksJava);

    // Check if student passes all subjects
    if (marksC >= 40 && marksCCP >= 40 && marksJava >= 40) {
        // Calculate total marks
        total = marksC + marksCCP + marksJava;

        // Calculate average marks
        average = total / 3.0;

        // Determine class based on average marks
        if (average >= 70) {
            grade = 'A';
        } else if (average >= 60) {
            grade = 'B';
        } else if (average >= 50) {
```

```
    grade = 'C';
} else {
    grade = 'D';
}

// Display results
printf("Total marks: %.2f\n", total);
printf("Average marks: %.2f\n", average);
printf("Class: Grad
```

30. #include <stdio.h>

```
int main() {
    char customerName[100];
    int customerId;
    float prevMonthReading, currMonthReading, unitsConsumed, tariffRate, totalAmount;

    // Input customer details
    printf("Enter customer name: ");
    scanf("%[^\n]%*c", customerName);

    printf("Enter customer ID: ");
    scanf("%d", &customerId);

    // Input previous and current month readings
    printf("Enter previous month reading (in kWh): ");
    scanf("%f", &prevMonthReading);

    printf("Enter current month reading (in kWh): ");
    scanf("%f", &currMonthReading);

    // Input tariff rate per unit
    printf("Enter tariff rate per unit (in Rs/kWh): ");
    scanf("%f", &tariffRate);

    // Calculate units consumed
    unitsConsumed = currMonthReading - prevMonthReading;

    // Calculate total amount to be paid
    totalAmount = unitsConsumed * tariffRate;
```

```
    // Display electricity bill
    printf("\nElectricity Bill\n");
    printf("Customer Name: %s\n", customerName);
    printf("Customer ID: %d\n", customerId);
    printf("Previous Month Reading: %.2f kWh\n", prevMonthReading);
    printf("Current Month Reading: %.2f kWh\n", currMonthReading);
    printf("Units Consumed: %.2f kWh\n", unitsConsumed);
    printf("Tariff Rate per Unit: Rs. %.2f/kWh\n", tariffRate);
    printf("Total Amount to be Paid: Rs. %.2f\n", totalAmount);

    return 0;
}
```

31. #include <stdio.h>

```
int main() {
    int number;

    // Input number from user
    printf("Enter an integer number: ");
    scanf("%d", &number);

    // Check if number is even or odd using ternary operator
    (number % 2 == 0) ? printf("%d is even.\n", number) : printf("%d is odd.\n", number);

    return 0;
}
```

32. #include <stdio.h>

```
int main() {
    float height_cm;
    float height_feet;

    // Input height in centimeters
    printf("Enter height in centimeters: ");
    scanf("%f", &height_cm);

    // Convert height from centimeters to feet
    height_feet = height_cm / 30.48; // 1 foot = 30.48 cm

    // Categorize based on height in feet
    if (height_feet > 5.5) {
        printf("Taller (above 5.5 feet)\n");
    } else if (height_feet < 4.5) {
        printf("Dwarf (below 4.5 feet)\n");
    } else {
        printf("Average height (between 4.5 and 5.5 feet)\n");
    }

    return 0;
}
```

33.

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

// Define a structure for menu items
struct MenuItem {
    char name[50];
    float price;
};

// Function to display the menu
void displayMenu(struct MenuItem menu[], int numItems) {
    printf("\nMenu:\n");
    printf("-------------------------------------------------\n");
    printf(" %-30s %10s\n", "Item", "Price (Rs)");
    printf("-------------------------------------------------\n");
    for (int i = 0; i < numItems; ++i) {
        printf(" %-30s %10.2f\n", menu[i].name, menu[i].price);
    }
    printf("-------------------------------------------------\n");
}

// Function to place an order
void placeOrder(struct MenuItem menu[], int numItems) {
    int choice;
    int quantity;
    float totalAmount = 0.0;

    printf("\nPlace Order:\n");
    printf("Enter item number (1-%d): ", numItems);
```

```
    scanf("%d", &choice);

    if (choice < 1 || choice > numItems) {
        printf("Invalid choice. Please enter a valid item number.\n");
        return;
    }

    printf("Enter quantity: ");
    scanf("%d", &quantity);

    // Calculate total amount for the order
    totalAmount = menu[choice - 1].price * quantity;

    // Display order details
    printf("\nOrder Summary:\n");
    printf("-----------------------------------------------\n");
    printf(" %-30s %10s %10s\n", "Item", "Quantity", "Total (Rs)");
    printf("-----------------------------------------------\n");
    printf(" %-30s %10d %10.2f\n", menu[choice - 1].name, quantity, totalAmount);
    printf("-----------------------------------------------\n");

    // Additional logic for processing payment could be added here
}

int main() {
    // Define menu items
    struct MenuItem menu[] = {
        {"Paneer Tikka", 250.0},
        {"Chicken Biryani", 300.0},
        {"Masala Dosa", 150.0},
        {"Pasta Alfredo", 200.0},
```

```
    {"Veg Burger", 120.0}
};

int numItems = sizeof(menu) / sizeof(menu[0]);
int choice;

do {
    // Display options
    printf("\nWelcome to MyRestaurant!\n");
    printf("1. Display Menu\n");
    printf("2. Place Order\n");
    printf("3. Exit\n");
    printf("Enter your choice: ");
    scanf("%d", &choice);

    switch (choice) {
        case 1:
            displayMenu(menu, numItems);
            break;
        case 2:
            placeOrder(menu, numItems);
            break;
        case 3:
            printf("Thank you for visiting MyRestaurant!\n");
            break;
        default:
            printf("Invalid choice. Please enter a valid option.\n");
    }
} while (choice != 3);

return 0;

}
```

34. #include<stdio.h>

```
int main() {
    char operator;
    float operand1, operand2, result;

    // Input operator and operands
    printf("Enter an operator (+, -, *, /): ");
    scanf(" %c", &operator);

    printf("Enter two operands: ");
    scanf("%f %f", &operand1, &operand2);

    // Perform arithmetic operation based on operator
    switch (operator) {
        case '+':
            result = operand1 + operand2;
            printf("%.2f + %.2f = %.2f\n", operand1, operand2, result);
            break;
        case '-':
            result = operand1 - operand2;
            printf("%.2f - %.2f = %.2f\n", operand1, operand2, result);
            break;
        case '*':
            result = operand1 * operand2;
            printf("%.2f * %.2f = %.2f\n", operand1, operand2, result);
            break;
        case '/':
            if (operand2 != 0) {
                result = operand1 / operand2;
                printf("%.2f / %.2f = %.2f\n", operand1, operand2, result);
```

```
        } else {
            printf("Error: Division by zero\n");
        }
        break;
    default:
        printf("Error: Invalid operator\n");
  }

  return 0;
}
```

35. #include <stdio.h>

```
int main() {
    char grade;

    // Input grade code
    printf("Enter grade code (S, A, B, Y, F): ");
    scanf(" %c", &grade);

    // Convert lowercase to uppercase if needed
    grade = toupper(grade);

    // Determine equivalent description using switch case
    switch (grade) {
        case 'S':
            printf("Equivalent Description: SUPER\n");
            break;
        case 'A':
            printf("Equivalent Description: VERY GOOD\n");
            break;
        case 'B':
            printf("Equivalent Description: FAIR\n");
            break;
        case 'Y':
            printf("Equivalent Description: ABSENT\n");
            break;
        case 'F':
            printf("Equivalent Description: FAILS\n");
            break;
        default:
            printf("Invalid grade code entered.\n");

    }
    return 0;
    }
```

36. #include <stdio.h>

```
int main() {
    char ch;

    // Input character from user
    printf("Enter a character: ");
    scanf(" %c", &ch);

    // Check if the character is a digit using conditional operator
    (ch >= '0' && ch <= '9') ? printf("%c is a digit.\n", ch) : printf("%c is not a digit.\n", ch);

    return 0;
}
```

37. #include <stdio.h>

```
int main() {
    int num1, num2;

    // Input two integer values
    printf("Enter first integer: ");
    scanf("%d", &num1);

    printf("Enter second integer: ");
    scanf("%d", &num2);

    // Compare the two integers and print the appropriate message
    if (num1 < num2) {
        printf("up\n");
    } else if (num1 > num2) {
        printf("down\n");
    } else {
        printf("equal\n");
    }

    return 0;
}
```

38. #include <stdio.h>

```
int main() {
    int num1, num2, num3;

    // Input three integer values
    printf("Enter three integers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    // Print integers in ascending order using if-else
    printf("Ascending order: ");
    if (num1 <= num2 && num1 <= num3) {
        printf("%d ", num1);
        if (num2 <= num3) {
            printf("%d %d\n", num2, num3);
        } else {
            printf("%d %d\n", num3, num2);
        }
    } else if (num2 <= num1 && num2 <= num3) {
        printf("%d ", num2);
        if (num1 <= num3) {
            printf("%d %d\n", num1, num3);
        } else {
            printf("%d %d\n", num3, num1);
        }
    } else { // num3 is smallest
        printf("%d ", num3);
        if (num1 <= num2) {
            printf("%d %d\n", num1, num2);
        } else {
            printf("%d %d\n", num2, num1);
```

```
    }
  }

  // Print integers in descending order using if-else
  printf("Descending order: ");
  if (num1 >= num2 && num1 >= num3) {
    printf("%d ", num1);
    if (num2 >= num3) {
      printf("%d %d\n", num2, num3);
    } else {
      printf("%d %d\n", num3, num2);
    }
  } else if (num2 >= num1 && num2 >= num3) {
    printf("%d ", num2);
    if (num1 >= num3) {
      printf("%d %d\n", num1, num3);
    } else {
      printf("%d %d\n", num3, num1);
    }
  } else { // num3 is largest
    printf("%d ", num3);
    if (num1 >= num2) {
      printf("%d %d\n", num1, num2);
    } else {
      printf("%d %d\n", num2, num1);
    }
  }

  return 0;
}
```

39. #include <stdio.h>

```
int main() {
    int num1, num2, num3;

    // Input three integer values
    printf("Enter three integers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    // Print integers in ascending order using if-else
    printf("Ascending order: ");
    if (num1 <= num2 && num1 <= num3) {
        printf("%d ", num1);
        if (num2 <= num3) {
            printf("%d %d\n", num2, num3);
        } else {
            printf("%d %d\n", num3, num2);
        }
    } else if (num2 <= num1 && num2 <= num3) {
        printf("%d ", num2);
        if (num1 <= num3) {
            printf("%d %d\n", num1, num3);
        } else {
            printf("%d %d\n", num3, num1);
        }
    } else { // num3 is smallest
        printf("%d ", num3);
        if (num1 <= num2) {
            printf("%d %d\n", num1, num2);
        } else {
            printf("%d %d\n", num2, num1);
```

```
    }
  }

  // Print integers in descending order using if-else
  printf("Descending order: ");
  if (num1 >= num2 && num1 >= num3) {
    printf("%d ", num1);
    if (num2 >= num3) {
      printf("%d %d\n", num2, num3);
    } else {
      printf("%d %d\n", num3, num2);
    }
  } else if (num2 >= num1 && num2 >= num3) {
    printf("%d ", num2);
    if (num1 >= num3) {
      printf("%d %d\n", num1, num3);
    } else {
      printf("%d %d\n", num3, num1);
    }
  } else { // num3 is largest
    printf("%d ", num3);
    if (num1 >= num2) {
      printf("%d %d\n", num1, num2);
    } else {
      printf("%d %d\n", num2, num1);
    }
  }

  return 0;
}
```

40. #include <stdio.h>

```
int main() {
    int choice;

    // Input choice from user
    printf("Enter traffic signal number (1-3): ");
    scanf("%d", &choice);

    // Display traffic signal based on choice using switch case
    switch (choice) {
        case 1:
            printf("Red signal - Stop\n");
            break;
        case 2:
            printf("Yellow signal - Prepare to stop\n");
            break;
        case 3:
            printf("Green signal - Go\n");
            break;
        default:
            printf("Invalid choice\n");
    }

    return 0;
}
```

41. #include <stdio.h>

```
int main() {
    char grade;

    // Input grade from user
    printf("Enter grade (A, B, C, D, F): ");
    scanf(" %c", &grade);

    // Convert lowercase to uppercase if needed
    grade = toupper(grade);

    // Determine equivalent description using switch case
    switch (grade) {
        case 'A':
            printf("Equivalent Description: Excellent\n");
            break;
        case 'B':
            printf("Equivalent Description: Good\n");
            break;
        case 'C':
            printf("Equivalent Description: Average\n");
            break;
        case 'D':
            printf("Equivalent Description: Below Average\n");
            break;
        case 'F':
            printf("Equivalent Description: Fail\n");
            break;
        default:
            printf("Invalid grade entered.\n");
    }
    return 0;
    }
```

42. C program that reads the temperature in centigrade and displays a suitable message according to the temperature state:

```
#include <stdio.h>

int main() {
   float temperature;

   // Read the temperature from the user
   printf("Input Temperature in centigrade: ");
   scanf("%f", &temperature);

   // Display the suitable message according to the temperature state
   if (temperature < 0) {
      printf("Freezing weather.\n");
   } else if (temperature >= 0 && temperature < 10) {
      printf("Very Cold weather.\n");
   } else if (temperature >= 10 && temperature < 20) {
      printf("Cold weather.\n");
   } else if (temperature >= 20 && temperature < 30) {
      printf("Normal weather.\n");
   } else if (temperature >= 30 && temperature < 40) {
      printf("Its Hot.\n");
   } else {
      printf("Its Very Hot.\n");
   }

   return 0;

}
```

43. C program that reads the floor number and displays the appropriate view based on the floor number:

```
#include <stdio.h>

Int main() {

   Int floorNumber;

  // Read the floor number from the user

   Printf(“Enter your Floor number: “);

   Scanf(“%d”, &floorNumber);

   // Check if the floor number is valid and display the corresponding view

   If (floorNumber > 50) {

      Printf(“We have only 50 floors.\n”);

   } else if (floorNumber % 2 == 0) {

      Printf(“Heyy you have \”Beach View\” for your Flat.\n”);

   } else {

      Printf(“Heyy you have \”Forest View\” for your Flat.\n”);

   }


   Return 0;

}
```

44. C program to read a character and check whether it is a capital letter, a lowercase letter, a digit, or a special character:

```
#include <stdio.h>

#include <ctype.h>

Int main() {

   Char ch;

  // Read a character from the user

   Printf(“Enter a character: “);

   Scanf(“%c”, &ch);

   // Check and display the type of the character

   If (isupper(ch)) {

      Printf(“The character ‘%c’ is a capital letter.\n”, ch);

   } else if (islower(ch)) {

      Printf(“The character ‘%c’ is a lowercase letter.\n”, ch);

   } else if (isdigit(ch)) {

      Printf(“The character ‘%c’ is a digit.\n”, ch);

   } else {

      Printf(“The character ‘%c’ is a special character.\n”, ch);

   }


  Return 0;

}
```

45. C program that reads two numbers from the user and prints their absolute difference:

```
#include <stdio.h>
#include <stdlib.h>
int main() {
   int num1, num2, difference;

 // Read two numbers from the user
   printf("Enter the first number: ");
   scanf("%d", &num1);
   printf("Enter the second number: ");
   scanf("%d", &num2);
  // Calculate the absolute difference
   difference = abs(num1 - num2);
 // Print the absolute difference
   printf("The absolute difference is: %d\n", difference);
 return 0;
}
```

46. C program to read the cost price and selling price from the user and calculate whether there is a profit, loss, or no loss no profit:

```
#include <stdio.h>

int main() {
   float costPrice, sellingPrice, difference;

  // Read cost price from the user
   printf("Enter Cost Price: ");
   scanf("%f", &costPrice);

   // Read selling price from the user
   printf("Enter Selling Price: ");
   scanf("%f", &sellingPrice);

   // Calculate the difference
   difference = sellingPrice - costPrice;

   // Determine and print whether there is a profit, loss, or no profit no loss
   if (difference > 0) {
      printf("Heyy, You have made a profit of Rs.%.2f/-\n", difference);
   } else if (difference < 0) {
      printf("Oops!, You Incurred a Loss of Rs.%.2f/-\n", -difference);
   } else {
      printf("Hmmm!, No Loss...No Profit...\n");
   }

   return 0
}
```

47. C program that reads the ratings of three movies and displays which one is the hit movie using logical operators:

```
#include <stdio.h>
int main() {
   float rating1, rating2, rating3;

   // Read the ratings of three movies
   printf("Enter the rating for Movie 1 (1 to 10): ");
   scanf("%f", &rating1);
   printf("Enter the rating for Movie 2 (1 to 10): ");
   scanf("%f", &rating2);
   printf("Enter the rating for Movie 3 (1 to 10): ");
   scanf("%f", &rating3);

   // Validate the ratings
   if ((rating1 < 1 || rating1 > 10) || (rating2 < 1 || rating2 > 10) || (rating3 < 1 || rating3 > 10)) {
      printf("Error: Ratings should be between 1 and 10.\n");
      return 1; // Exit the program with an error code
   }

   // Determine and display which movie is the hit movie
   if (rating1 > rating2 && rating1 > rating3) {
      printf("Movie 1 is the hit movie with a rating of %.1f\n", rating1);
   } else if (rating2 > rating1 && rating2 > rating3) {
      printf("Movie 2 is the hit movie with a rating of %.1f\n", rating2);
   } else if (rating3 > rating1 && rating3 > rating2) {
      printf("Movie 3 is the hit movie with a rating of %.1f\n", rating3);
```

```
    } else {
        printf("There is no single hit movie. There might be a tie.\n");
    }

    return 0;
}
```

48

C program to calculate and print the electricity bill of a given customer based on the provided details:

```
#include <stdio.h>
int main() {
   int customerID;
   char customerName[50];
   float unitsConsumed, totalAmount = 0, surcharge = 0, chargePerUnit = 0;

   // Read customer details
   printf("Input Customer ID: ");
   scanf("%d", &customerID);
   printf("Input Customer Name: ");
   scanf("%s", customerName);
   printf("Input Units Consumed: ");
   scanf("%f", &unitsConsumed);

   // Calculate charge per unit based on units consumed
   if (unitsConsumed <= 199) {
      chargePerUnit = 1.20;
   } else if (unitsConsumed >= 200 && unitsConsumed < 400) {
      chargePerUnit = 1.50;
   } else if (unitsConsumed >= 400 && unitsConsumed < 600) {
      chargePerUnit = 1.80;
   } else {
      chargePerUnit = 2.00;
   }
```

```
    // Calculate total amount
    totalAmount = unitsConsumed * chargePerUnit;

    // Apply minimum bill condition
    if (totalAmount < 100) {
        totalAmount = 100;
    }

    // Apply surcharge if applicable
    if (totalAmount > 400) {
        surcharge = totalAmount * 0.15;
    }

    // Print the bill
    printf("Customer IDNO: %d\n", customerID);
    printf("Customer Name: %s\n", customerName);
    printf("Unit Consumed: %.2f\n", unitsConsumed);
    printf("Amount Charges @Rs. %.2f per unit: %.2f\n", chargePerUnit, unitsConsumed *
chargePerUnit);
    printf("Surcharge Amount: %.2f\n", surcharge);
    printf("Net Amount Paid by the Customer: %.2f\n", totalAmount + surcharge);

    return 0;
}
```

49. C program to read the user's year of birth and check whether it is a leap year or not:

```
#include <stdio.h>
int main() {
   int year;

 // Read the year of birth from the user
   printf("Enter your year of birth: ");
   scanf("%d", &year);

   // Check if the year is a leap year
   if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
      printf("You were born in a leap year.\n");
   } else {
      printf("You were not born in a leap year.\n");
   }

   return 0;
}
```

50. C program to accept marks of 3 subjects, calculate the total and average, and display the grade based on the given data:

```
#include <stdio.h>
Int main() {
   Float marks1, marks2, marks3, total, average;
   Char grade;

 // Read the marks for three subjects
   Printf(“Enter the marks for subject 1: “);
   Scanf(“%f”, &marks1);
   Printf(“Enter the marks for subject 2: “);
   Scanf(“%f”, &marks2);
   Printf(“Enter the marks for subject 3: “);
   Scanf(“%f”, &marks3);

   // Calculate total and average
   Total = marks1 + marks2 + marks3;
   Average = total / 3;

   // Determine the grade based on the average
   If (average > 90) {
      Grade = ‘A’;
      Printf(“Average: %.2f%%\n”, average);
      Printf(“Grade: A+\n”);
   } else if (average >= 80 && average <= 90) {
      Grade = ‘A’;
      Printf(“Average: %.2f%%\n”, average);
```

```
        Printf(“Grade: A\n”);
    } else if (average >= 70 && average < 80) {
        Grade = ‘B’;
        Printf(“Average: %.2f%%\n”, average);
        Printf(“Grade: B+\n”);
    } else if (average >= 60 && average < 70) {
        Grade = ‘B’;
        Printf(“Average: %.2f%%\n”, average);
        Printf(“Grade: B\n”);
    } else if (average >= 50 && average < 60) {
        Grade = ‘C’;
        Printf(“Average: %.2f%%\n”, average);
        Printf(“Grade: C\n”);
    } else {
        Grade = ‘F’;
        Printf(“Average: %.2f%%\n”, average);
        Printf(“Grade: F\n”);
    }

    Return 0;
}
```

51. A c program to accept basic salary, allowances, deductions, and experience of an Employee and perform the following –

```
#include <stdio.h>
Int main() {
   Float basic_salary, allowances, deductions, experience, gross_salary, net_salary, bonus;

   // Accepting input
   Printf(“Enter basic salary: “);
   Scanf(“%f”, &basic_salary);
   Printf(“Enter allowances: “);
   Scanf(“%f”, &allowances);
   Printf(“Enter deductions: “);
   Scanf(“%f”, &deductions);
   Printf(“Enter years of experience: “);
   Scanf(“%f”, &experience);

   // Calculating gross salary
   Gross_salary = basic_salary + allowances – deductions;

   // Calculating net salary
   Net_salary = gross_salary – deductions;

   // Calculating bonus
   If (experience > 5) {
      Bonus = net_salary * 3;
   } else if (experience > 3) {
```

```
        Bonus = net_salary * 2;
    } else {
        Bonus = net_salary;
    }

    // Displaying results
    Printf("\nGross Salary: %.2f\n", gross_salary);
    Printf("Net Salary: %.2f\n", net_salary);
    Printf("Bonus: %.2f\n", bonus);

    Return 0;
}
```

52. Program in c to check whether the inputted data is capital letter or small letter or digit or special character.

```
#include <stdio.h>
#include <ctype.h>
int main() {
   char ch;

   // Accepting input
   printf("Enter a character: ");
   scanf("%c", &ch);

   // Checking the character type
   if(isupper(ch)) {
      printf("Inputted character is a capital letter.\n");
   } else if(islower(ch)) {
      printf("Inputted character is a small letter.\n");
   } else if(isdigit(ch)) {
      printf("Inputted character is a digit.\n");
   } else {
      printf("Inputted character is a special character.\n");
   }

   return 0;
}
```

53. Program In c to check whether the input character is a vowel or a consonant.

```
#include <stdio.h>
#include <ctype.h>
Int main() {
   Char ch, ch_upper;

   // Accepting input
   Printf(“Enter a character: “);
   Scanf(“ %c”, &ch);

   // Converting the character to uppercase
   Ch_upper = toupper(ch);

   // Checking if the character is a vowel or a consonant
   If(ch_upper == ‘A’ || ch_upper == ‘E’ || ch_upper == ‘I’ || ch_upper == ‘O’ || ch_upper == ‘U’) {
      Printf(“Inputted character is a vowel.\n”);
   } else {
      Printf(“Inputted character is a consonant.\n”);
   }

   Return 0;
}
```

54. Solve the program using logical operators to combine the conditions

```
#include <stdio.h>
int main() {
   char marital_status;
   char gender;
   int age;

  // Accepting input
   printf("Enter marital status (M for married, U for unmarried): ");
   scanf(" %c", &marital_status);
   printf("Enter gender (M for male, F for female): ");
   scanf(" %c", &gender);
   printf("Enter age: ");
   scanf("%d", &age);

   // Checking eligibility for bonus
   if ((marital_status == 'M') ||
      (marital_status == 'U' && ((gender == 'M' && age > 30) || (gender == 'F' && age > 25))))
{
      printf("Person is eligible for bonus.\n");
   } else {
      printf("Person is not eligible for bonus.\n");
   }

   return 0;

  }
```

55.

```
 # include <stdio.h>
int main() {
    char marital_status;
    char gender;
    int age;

    // Accepting input
    printf("Enter marital status (M for married, U for unmarried): ");
    scanf(" %c", &marital_status);
    printf("Enter gender (M for male, F for female): ");
    scanf(" %c", &gender);
    printf("Enter age: ");
    scanf("%d", &age);

    // Checking eligibility for bonus
    if ((marital_status == 'M') ||
        (marital_status == 'U' && ((gender == 'M' && age > 30) || (gender == 'F' && age > 25))))
{
        printf("Person is eligible for bonus.\n");
    } else {
        printf("Person is not eligible for bonus.\n");
    }

    return 0;
}
```

56. C program that checks if a passenger is eligible for concession based on the given criteria:

```
#include <stdio.h>

Int main() {

   Char gender;

   Int age;


   // Accepting input

   Printf(“Enter gender (M for male, F for female): “);

   Scanf(“ %c”, &gender);

   Printf(“Enter age: “);

   Scanf(“%d”, &age);


   // Checking eligibility for concession

   If ((gender == ‘M’ && age > 60) || (gender == ‘F’ && age > 50) || age < 5) {

      Printf(“Passenger is eligible for concession.\n”);

   } else {

      Printf(“Passenger is not eligible for concession.\n”);

   }


   Return 0;

}
```