C Programming Examples - Code and Output

1. ATM Machine Program

```
#include <stdio.h>

int main() {
   int option;

   printf("ATM Options:\n1. Withdraw\n2. Deposit\n3. Check Balance\n");
   printf("Enter your choice: ");
   scanf("%d", &option);

   switch (option) {
      case 1:
         printf("Processing withdrawal...\n");
         break;
      case 2:
         printf("Processing deposit...\n");
         break;
      case 3:
         printf("Checking balance...\n");
         break;
      default:
         printf("Invalid option.\n");
   }
   return 0;
}
```

Sample Output:

ATM Options:

1. Withdraw

2. Deposit

3. Check Balance

Enter your choice: 1

Processing withdrawal...

2. User Discount Program

```
#include <stdio.h>

int main() {
   char userType;

   printf("Enter user type (N: New, R: Regular, P: Premium): ");
   scanf(" %c", &userType);

   switch (userType) {
      case 'N':
      case 'n':
         printf("You get 5%% discount.\n");
         break;
      case 'R':
      case 'r':
         printf("You get 10%% discount.\n");
         break;
      case 'P':
      case 'p':
         printf("You get 20%% discount.\n");
         break;
      default:
```

```
        printf("Invalid user type.\n");
    }
    return 0;
}
```

Sample Output:

Enter user type (N: New, R: Regular, P: Premium): P

You get 20% discount.

3. Traffic Light with Enum

```
#include <stdio.h>

int main() {
    enum TrafficLight { RED, GREEN, YELLOW };
    enum TrafficLight light = RED;

    printf("Current traffic light status:\n");

    switch (light) {
        case RED:
            printf("Stop!\n");
            light = GREEN;
            break;
        case GREEN:
            printf("Go!\n");
            light = YELLOW;
            break;
        case YELLOW:
            printf("Slow down!\n");
            light = RED;
```

```
        break;
    default:
        printf("Unknown signal.\n");
  }
  return 0;
}
```

Sample Output:

Current traffic light status:

Stop!

4. Simple Restaurant Menu

```
#include <stdio.h>

int main() {
  int choice;

  printf("Choose your dish:\n1. Pizza\n2. Burger\n3. Pasta\n");
  printf("Enter your choice: ");
  scanf("%d", &choice);

  switch (choice) {
    case 1:
      printf("You ordered Pizza.\n");
      break;
    case 2:
      printf("You ordered Burger.\n");
      break;
    case 3:
      printf("You ordered Pasta.\n");
```

```
        break;
    default:
        printf("Invalid choice.\n");
  }
  return 0;
}
```

Sample Output:

Choose your dish:

1. Pizza

2. Burger

3. Pasta

Enter your choice: 2

You ordered Burger.

5. Hotel Restaurant Menu (If-Else)

```
#include <stdio.h>

int main() {
  int menu;

  printf("Welcome to the hotel\n");
  printf("Here is your Menu:\n");
  printf("1. South Indian Thali\n");
  printf("2. North Indian Thali\n");
  printf("3. Chinese Combo\n");
  printf("4. Continental Platter\n");
  printf("Enter your choice (1-4): ");
  scanf("%d", &menu);
```

```
    if (menu == 1)
        printf("You chose South Indian Thali. Enjoy dosa, sambar, and rice!\n");
    else if (menu == 2)
        printf("You chose North Indian Thali. Enjoy roti, paneer, and dal!\n");
    else if (menu == 3)
        printf("You chose Chinese Combo. Enjoy noodles and Manchurian!\n");
    else if (menu == 4)
        printf("You chose Continental Platter. Enjoy pasta and grilled veggies!\n");
    else
        printf("Invalid choice. Please select a valid menu item.\n");

    return 0;
}
```

Sample Output:

Welcome to the hotel

Here is your Menu:

1. South Indian Thali

2. North Indian Thali

3. Chinese Combo

4. Continental Platter

Enter your choice (1-4): 3

You chose Chinese Combo. Enjoy noodles and Manchurian!

6. Traffic Light Signal (Character Input)

```
#include <stdio.h>

int main() {
    char signal;
```

```
    printf("Enter traffic light color (R for Red, Y for Yellow, G for Green): ");
    scanf(" %c", &signal);

    if (signal == 'R' || signal == 'r')
        printf("Red Light - Stop!\n");
    else if (signal == 'Y' || signal == 'y')
        printf("Yellow Light - Get Ready!\n");
    else if (signal == 'G' || signal == 'g')
        printf("Green Light - Go!\n");
    else
        printf("Invalid signal color. Please enter R, Y, or G.\n");

    return 0;
}
```

Sample Output:

Enter traffic light color (R for Red, Y for Yellow, G for Green): G

Green Light - Go!

7. Weather Advisory Program

```
#include <stdio.h>

int main() {
    int temperature;

    printf("Enter the temperature in Celsius: ");
    scanf("%d", &temperature);

    if (temperature >= 35)
        printf("It's hot! Wear light clothes.\n");
```

```
    else if (temperature >= 25)
        printf("Warm weather. T-shirt and shorts will be comfortable.\n");
    else if (temperature >= 15)
        printf("Mild weather. Light jacket should be fine.\n");
    else if (temperature >= 5)
        printf("Cold weather. Wear a sweater or coat.\n");
    else
        printf("Freezing! Wear thermal and a heavy coat.\n");

    return 0;
}
```

Sample Output:

Enter the temperature in Celsius: 28

Warm weather. T-shirt and shorts will be comfortable.

8. Bill Discount Calculator

```
#include <stdio.h>

int main() {
    float bill, discount = 0;

    printf("Enter your total bill amount: ₹");
    scanf("%f", &bill);

    if (bill > 1000) {
        discount = bill * 0.10;
        printf("You got a 10%% discount of ₹%.2f\n", discount);
        printf("Final amount to pay: ₹%.2f\n", bill - discount);
    } else {
```

```
        printf("No discount applied.\n");
        printf("Amount to pay: ₹%.2f\n", bill);
    }

    return 0;
}
```

Sample Output:

Enter your total bill amount: ₹1500

You got a 10% discount of ₹150.00

Final amount to pay: ₹1350.00

9. ATM Withdrawal Program

```
#include <stdio.h>

int main() {
    float balance = 5000.0, withdraw;

    printf("Current balance: ₹%.2f\n", balance);
    printf("Enter amount to withdraw: ₹");
    scanf("%f", &withdraw);

    if (withdraw <= balance) {
        balance -= withdraw;
        printf("Withdrawal successful!\n");
        printf("Remaining balance: ₹%.2f\n", balance);
    } else {
        printf("Insufficient Balance.\n");
    }
```

```
    return 0;
}
```

Sample Output:

Current balance: ₹5000.00

Enter amount to withdraw: ₹2000

Withdrawal successful!

Remaining balance: ₹3000.00

10. Voting Eligibility Checker

```
#include <stdio.h>

int main() {
    int age;

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

    if (age >= 18) {
        printf("You are eligible to vote.\n");
    } else {
        printf("You are not eligible to vote.\n");
        printf("You need to wait %d more years.\n", 18 - age);
    }

    return 0;
}
```

Sample Output:

Enter your age: 16

You are not eligible to vote.

You need to wait 2 more years.

11. ATM Menu System

```
#include <stdio.h>

int main() {
   int choice;
   double balance = 1000.0;
   double amount;

   do {
      printf("\n=== ATM Menu ===\n");
      printf("1. Check Balance\n");
      printf("2. Deposit Money\n");
      printf("3. Withdraw Money\n");
      printf("4. Exit\n");
      printf("Enter your choice: ");
      scanf("%d", &choice);

      if (choice == 1) {
         printf("Current Balance: ₹%.2f\n", balance);
      } else if (choice == 2) {
         printf("Enter deposit amount: ₹");
         scanf("%lf", &amount);
         balance += amount;
         printf("Amount deposited successfully!\n");
      } else if (choice == 3) {
         printf("Enter withdrawal amount: ₹");
         scanf("%lf", &amount);
```

```
            if (amount <= balance) {
                balance -= amount;
                printf("Amount withdrawn successfully!\n");
            } else {
                printf("Insufficient funds!\n");
            }
        } else if (choice == 4) {
            printf("Thank you for using ATM!\n");
        } else {
            printf("Invalid choice!\n");
        }
    } while (choice != 4);

    return 0;
}
```

Sample Output:

=== ATM Menu ===

1. Check Balance

2. Deposit Money

3. Withdraw Money

4. Exit

Enter your choice: 1

Current Balance: ₹1000.00

=== ATM Menu ===

1. Check Balance

2. Deposit Money

3. Withdraw Money

4. Exit

Enter your choice: 2

Enter deposit amount: ₹500

Amount deposited successfully!

=== ATM Menu ===

1. Check Balance

2. Deposit Money

3. Withdraw Money

4. Exit

Enter your choice: 4

Thank you for using ATM!

12. ATM PIN Verification

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

int main() {
   char correctPIN[] = "1234";
   char enteredPIN[10];
   int attempts = 0;
   int maxAttempts = 3;

   printf("=== ATM PIN Verification ===\n");

   while (attempts < maxAttempts) {
      printf("Enter your PIN: ");
      scanf("%s", enteredPIN);
```

```
    if (strcmp(enteredPIN, correctPIN) == 0) {
        printf("Access granted. Welcome!\n");
        return 0;
    } else {
        attempts++;
        if (attempts < maxAttempts) {
            printf("Incorrect PIN. %d attempts remaining.\n",
                maxAttempts - attempts);
        }
    }
  }

  printf("Card blocked due to multiple incorrect attempts.\n");
  return 0;
}
```

Sample Output:

=== ATM PIN Verification ===

Enter your PIN: 1111

Incorrect PIN. 2 attempts remaining.

Enter your PIN: 1234

Access granted. Welcome!

13. Bus Fare Calculator

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

int main() {
  char destination[50];
  char ticketType[20];
```

```
    int fare;

    printf("=== Bus Ticket Booking ===\n");
    printf("Enter destination: ");
    scanf("%s", destination);

    printf("Enter ticket type (one-way/return): ");
    scanf("%s", ticketType);

    if (strcmp(ticketType, "one-way") == 0) {
        fare = 350;
    } else if (strcmp(ticketType, "return") == 0) {
        fare = 600;
    } else {
        printf("Invalid ticket type. Defaulting to one-way.\n");
        fare = 350;
        strcpy(ticketType, "one-way");
    }

    printf("\n=== Ticket Details ===\n");
    printf("Destination: %s\n", destination);
    printf("Ticket Type: %s\n", ticketType);
    printf("Fare: ₹%d\n", fare);

    return 0;
}
```

Sample Output:

=== Bus Ticket Booking ===

Enter destination: Mumbai

Enter ticket type (one-way/return): return

=== Ticket Details ===

Destination: Mumbai

Ticket Type: return

Fare: ₹600

14. Bus Seat Allocation

```
#include <stdio.h>

int main() {
   int totalSeats = 40;

   printf("=== Bus Seat Allocation ===\n");
   printf("Total seats: %d\n\n", totalSeats);

   for (int seat = 1; seat <= totalSeats; seat++) {
      printf("Seat %2d: Available\n", seat);

      // Print separator after every 4 seats for better visualization
      if (seat % 4 == 0) {
         printf("\n");
      }
   }

   printf("All seats are currently available for booking.\n");
   return 0;
}
```

Sample Output (Partial):

=== Bus Seat Allocation ===

Total seats: 40

Seat 1: Available

Seat 2: Available

Seat 3: Available

Seat 4: Available

Seat 5: Available

Seat 6: Available

Seat 7: Available

Seat 8: Available

...

Seat 37: Available

Seat 38: Available

Seat 39: Available

Seat 40: Available

All seats are currently available for booking.

15. Cafeteria Daily Sales

```
#include <stdio.h>

int main() {
   float sales[30];
   float totalSales = 0;
   float averageSales;
```

```
    printf("=== Cafeteria Sales Data Entry ===\n");

    // Input sales data for 30 days
    for (int day = 0; day < 30; day++) {
        printf("Enter sales for Day %d: ₹", day + 1);
        scanf("%f", &sales[day]);
        totalSales += sales[day];
    }

    averageSales = totalSales / 30;

    // Display sales report
    printf("\n=== Cafeteria Sales Report ===\n");
    for (int day = 0; day < 30; day++) {
        printf("Day %2d: ₹%8.2f\n", day + 1, sales[day]);
    }

    printf("\n=== Summary ===\n");
    printf("Total Sales (30 days): ₹%.2f\n", totalSales);
    printf("Average Daily Sales: ₹%.2f\n", averageSales);

    return 0;
}
```

Sample Output (Partial):

=== Cafeteria Sales Data Entry ===

Enter sales for Day 1: ₹1500

Enter sales for Day 2: ₹1800

Enter sales for Day 3: ₹1200

...

=== Cafeteria Sales Report ===

Day 1: ₹ 1500.00

Day 2: ₹ 1800.00

Day 3: ₹ 1200.00

...

=== Summary ===

Total Sales (30 days): ₹45000.00

Average Daily Sales: ₹1500.00

16. Calculator Menu

```
#include <stdio.h>

int main() {
   int choice;
   double num1, num2;

   do {
      printf("\n=== Calculator Menu ===\n");
      printf("1. Addition (+)\n");
      printf("2. Subtraction (-)\n");
      printf("3. Multiplication (*)\n");
      printf("4. Division (/)\n");
      printf("5. Exit\n");
      printf("Enter your choice: ");
      scanf("%d", &choice);
```

```
    if (choice >= 1 && choice <= 4) {
        printf("Enter two numbers: ");
        scanf("%lf %lf", &num1, &num2);

        if (choice == 1) {
            printf("Result: %.2f + %.2f = %.2f\n", num1, num2, num1 + num2);
        } else if (choice == 2) {
            printf("Result: %.2f - %.2f = %.2f\n", num1, num2, num1 - num2);
        } else if (choice == 3) {
            printf("Result: %.2f * %.2f = %.2f\n", num1, num2, num1 * num2);
        } else if (choice == 4) {
            if (num2 != 0) {
                printf("Result: %.2f / %.2f = %.2f\n", num1, num2, num1 / num2);
            } else {
                printf("Error: Division by zero!\n");
            }
        }
    } else if (choice == 5) {
        printf("Thank you for using calculator!\n");
    } else {
        printf("Invalid choice!\n");
    }
  } while (choice != 5);

  return 0;
}
```

Sample Output:

=== Calculator Menu ===

1. Addition (+)

2. Subtraction (-)

3. Multiplication (*)

4. Division (/)

5. Exit

Enter your choice: 1

Enter two numbers: 15.5 10.2

Result: 15.50 + 10.20 = 25.70

=== Calculator Menu ===

1. Addition (+)

2. Subtraction (-)

3. Multiplication (*)

4. Division (/)

5. Exit

Enter your choice: 5

Thank you for using calculator!

17. Library Fine Calculator

```
#include <stdio.h>

int main() {
    int numBooks, returnDay, returnMonth, returnYear;
    int dueDay, dueMonth, dueYear, fine;
    int totalFine = 0;

    printf("=== Library Fine Calculator ===\n");
    printf("Enter number of books returned: ");
```

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

    for (int i = 0; i < numBooks; i++) {
        printf("\n--- Book %d ---\n", i + 1);

        printf("Enter return date (DD MM YYYY): ");
        scanf("%d %d %d", &returnDay, &returnMonth, &returnYear);

        printf("Enter due date (DD MM YYYY): ");
        scanf("%d %d %d", &dueDay, &dueMonth, &dueYear);

        // Calculate fine based on overdue period
        if (returnYear > dueYear) {
            fine = 10000; // Heavy fine for years overdue
        } else if (returnYear == dueYear && returnMonth > dueMonth) {
            fine = 500 * (returnMonth - dueMonth);
        } else if (returnYear == dueYear && returnMonth == dueMonth && returnDay >
dueDay) {
            fine = 15 * (returnDay - dueDay);
        } else {
            fine = 0; // No fine if returned on time
        }

        totalFine += fine;
        printf("Fine for Book %d: ₹%d\n", i + 1, fine);
    }

    printf("\n=== Summary ===\n");
```

```
    printf("Total Fine: ₹%d\n", totalFine);

    return 0;
}
```

Sample Output:

=== Library Fine Calculator ===

Enter number of books returned: 2

--- Book 1 ---

Enter return date (DD MM YYYY): 15 03 2024

Enter due date (DD MM YYYY): 10 03 2024

Fine for Book 1: ₹75

--- Book 2 ---

Enter return date (DD MM YYYY): 05 02 2024

Enter due date (DD MM YYYY): 20 02 2024

Fine for Book 2: ₹0

=== Summary ===

Total Fine: ₹75

18. Multiplication Table

```
#include <stdio.h>

int main() {
    int number;

    printf("=== Multiplication Table Generator ===\n");
    printf("Enter a number to print its multiplication table: ");
```

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

    printf("\n=== Multiplication Table of %d ===\n", number);

    for (int i = 1; i <= 10; i++) {
        printf("%d x %2d = %3d\n", number, i, number * i);
    }

    printf("\nTable generated successfully!\n");
    return 0;
}
```

Sample Output:

=== Multiplication Table Generator ===

Enter a number to print its multiplication table: 7

=== Multiplication Table of 7 ===

7 x 1 = 7

7 x 2 = 14

7 x 3 = 21

7 x 4 = 28

7 x 5 = 35

7 x 6 = 42

7 x 7 = 49

7 x 8 = 56

7 x 9 = 63

7 x 10 = 70

Table generated successfully!

19. Password Verification System

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

int main() {
   char password[20];
   char correctPassword[] = "Harish123";
   int attempts = 0;
   int maxAttempts = 3;

   printf("=== Password Verification System ===\n");

   do {
      printf("Enter password: ");
      scanf("%s", password);
      attempts++;

      if (strcmp(password, correctPassword) == 0) {
         printf("Welcome! Access granted.\n");
         return 0;
      } else {
         if (attempts < maxAttempts) {
            printf("Incorrect password. %d attempts remaining.\n",
                  maxAttempts - attempts);
         }
      }
   } while (attempts < maxAttempts);
```

```
    printf("Account blocked due to multiple failed attempts.\n");
    return 0;
}
```

Sample Output:

=== Password Verification System ===

Enter password: password123

Incorrect password. 2 attempts remaining.

Enter password: Harish123

Welcome! Access granted.

20. Student Roll Number Generator

```
#include <stdio.h>

int main() {
    int totalStudents = 50;
    int startRoll = 1001; // Starting roll number

    printf("=== Student Roll Number List ===\n");
    printf("Total Students: %d\n\n", totalStudents);

    for (int i = 0; i < totalStudents; i++) {
        printf("Student %2d - Roll Number: %d\n", i + 1, startRoll + i);

        // Add separator after every 10 students
        if ((i + 1) % 10 == 0) {
            printf("\n");
        }
    }
```

```
    printf("Roll numbers generated successfully!\n");
    return 0;
}
```

Sample Output (Partial):

=== Student Roll Number List ===

Total Students: 50

Student 1 - Roll Number: 1001

Student 2 - Roll Number: 1002

Student 3 - Roll Number: 1003

Student 4 - Roll Number: 1004

Student 5 - Roll Number: 1005

Student 6 - Roll Number: 1006

Student 7 - Roll Number: 1007

Student 8 - Roll Number: 1008

Student 9 - Roll Number: 1009

Student 10 - Roll Number: 1010

...

Student 50