



CENTRAL UNIVERSITY OF RAJASTHAN

NH-8, Bandarsindri, Tehsil: Kishangarh, District: Ajmer (Raj.)-305817

PROGRAMMING ASSIGNMENT

COUSE NAME:

INTRODUCTION TO PROGRAMMING

Submitted by:

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Bachelor of Technology

Computer Science and Technology

Q.1. Write a C program to print the following pattern for N number of rows given by user

12345

1234

123

12

1

main.c



Save

Run

Output

```
1  #include <stdio.h>
2  // 12345
3  // 1234
4  // 123
5  // 12
6  // 1
7  int main()
8  {
9      int n;
10     printf("Enter the number of rows: ");
11     scanf("%d", &n);
12
13     for (int i = n; i >= 1; i--)
14     {
15         for (int j = 1; j <= i; j++)
16         {
17             printf("%d", j);
18         }
19         printf("\n");
20     }
21
22     return 0;
23 }
```

```
/tmp/BByKiXthM1.o
Enter the number of rows: 7
1234567
123456
12345
1234
123
12
1
```

Q.1. Write a C program to print the following pattern for N number of rows given by user

```
*
**
***
****
*****
```

main.c

```
1  #include <stdio.h>
2  //      *
3  //      **
4  //      ***
5  //      ****
6  //      *****
7  int main()
8  {
9      int n;
10     printf("Enter the number of rows: ");
11     scanf("%d", &n);
12
13     for (int i = 0; i <= n; i++)
14     {
15         for (int j = 1; j <= (n - i); j++)
16         {
17             printf(" ");
18         }
19         for (int k = 0; k <= i; k++)
20         {
21             printf("*");
22         }
23
24         printf("\n");
25     }
26     return 0;
27 }
```



Save

Run

Output

```
/tmp/ZKw0qnYQjN.o
Enter the number of rows: 7
      *
      **
      ***
      ****
      *****
      *****
      *****
      *****
```

Q.1. Write a C program to print the following pattern:

```
1
2 3 4
5 6 7 8 9
```

main.c



Save

Run

Output

```
1  #include <stdio.h>
2  //      1
3  //    2 3 4
4  // 5 6 7 8 9
5  int main()
6  {
7      int count = 1;
8
9      for (int i = 1; i <= 3; i++)
10     {
11         for (int j = 0; j <= (2 - i); j++)
12         {
13             printf(" ");
14         }
15         for (int k = 1; k <= (2 * i - 1); k++)
16         {
17             printf("%d", count++);
18         }
19
20         printf("\n");
21     }
22
23     return 0;
24 }
```

/tmp/5Tr04CsT3l.o

1

234

56789

Q.2. Write a C program to check whether a number is palindrome or not.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2  //A palindrome is a number that is the same when reversed
3  int isPalindrome(int num) {
4      int reversedNum = 0, originalNum = num;
5
6      while (num != 0) {
7          int remainder = num % 10;
8          reversedNum = reversedNum * 10 + remainder;
9          num /= 10;
10     }
11
12     if (originalNum == reversedNum) {
13         return 1; // Palindrome
14     } else {
15         return 0; // Not a palindrome
16     }
17 }
18
19 int main() {
20     int num;
21
22     printf("Enter a number: ");
23     scanf("%d", &num);
24
25     if (isPalindrome(num)) {
26         printf("%d is a palindrome.\n", num);
27     } else {
28         printf("%d is not a palindrome.\n", num);
29     }
30
31     return 0;
32 }
```

/tmp/xt0U9zWMe0.o

Enter a number: 1536654

1536654 is not a palindrome.

/tmp/F4z6E9xZjX.o

Enter a number: 12321

12321 is a palindrome.

Q.3. Write a C program to find sum of first and last digit of a number.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int number, firstDigit, lastDigit, sum;
6
7      printf("Enter a number: ");
8      scanf("%d", &number);
9
10     // Extracting the first digit
11     firstDigit = number;
12     while (firstDigit >= 10)
13     {
14         firstDigit /= 10;
15     }
16
17     // Extracting the last digit
18     lastDigit = number % 10;
19
20     // Calculate the sum
21     sum = firstDigit + lastDigit;
22
23     printf("Sum of first and last digit: %d\n", sum);
24
25     return 0;
26 }
```

/tmp/dFJ5mFBS6H.o

Enter a number: 234234

Sum of first and last digit: 6

/tmp/lvRpnkvrDZ.o

Enter a number: 0

Sum of first and last digit: 0

/tmp/5dD0aokElB.o

Enter a number: 7

Sum of first and last digit: 14

/tmp/im2aQyMIeJ.o

Enter a number: 100

Sum of first and last digit: 1

Q.4. Write a C program to check whether a number is Armstrong number or not.

main.c

```
1  #include <stdio.h>
2  #include <math.h>
3  //An Armstrong number is a number that is the sum of its own digits each raised to the
   power of the number of digits
4  int isArmstrong(int num)
5  {
6      int originalNum, remainder, result = 0, n = 0;
7      originalNum = num;
8      // count the number of digits
9      while (originalNum != 0)
10     {
11         originalNum /= 10;
12         ++n;
13     }
14     originalNum = num;
15     // calculate the result
16     while (originalNum != 0)
17     {
18         remainder = originalNum % 10;
19         result += pow(remainder, n);
20         originalNum /= 10;
21     }
22     // check if the number is Armstrong
23     if (result == num)
24         return 1;
25     else
26         return 0;
27 }
28
29 int main()
30 {
31     int num;
32     printf("Enter a number: ");
33     scanf("%d", &num);
34     if (isArmstrong(num))
35         printf("%d is an Armstrong number.", num);
36     else
37         printf("%d is not an Armstrong number.", num);
38     return 0;
39 }
```

Output

```
/tmp/RTaLTaqh2M.o
Enter a number: 153
153 is an Armstrong number.

/tmp/rnu8V9sI4k.o
Enter a number: 100
100 is not an Armstrong number.

/tmp/h0bK35dXkL.o
Enter a number: 0
0 is an Armstrong number.

/tmp/KQE0068p0r.o
Enter a number: 4343
4343 is not an Armstrong number.

/tmp/uqCnHqJ50b.o
Enter a number: 1634
1634 is an Armstrong number.
```


Q.5. Write a C program to calculate product of digits of a number.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2
3  int main() {
4      int number, product = 1;
5
6      printf("Enter a number: ");
7      scanf("%d", &number);
8
9      while (number != 0) {
10         int digit = number % 10;
11         product *= digit;
12         number /= 10;
13     }
14
15     printf("Product of digits: %d\n", product);
16
17     return 0;
18 }
```

/tmp/jtiIw6Z0ba.o

Enter a number: 432

Product of digits: 24

/tmp/dhvo3TW50Z.o

Enter a number: 9

Product of digits: 9

/tmp/3nKXaUMPom.o

Enter a number: 3230

Product of digits: 0

! :



Run

/tmp/kUqF0knHty.o

*

* * * * *

*

```

1 #include <stdio.h>
2 int main()
3 {
4     int n, j, i;
5     printf("Enter number of rows :");
6     scanf("%d", &n);
7     for (i = 1; i <= n; i++)
8     {
9         for (j = 1; j <= n - i; j++)
10             printf(" ");
11
12         for (j = 1; j <= 2 * i - 1; j++)
13             printf("*");
14
15         printf("\n");
16     }
17     for (i = 1; i <= n - 1; i++)
18     {
19         for (j = 1; j <= i; j++)
20             printf(" ");
21
22         for (j = 1; j <= 2 * (n - i) - 1; j++)
23             printf("*");
24
25         printf("\n");
26     }
27     return 0;
28 }

```

main.c



Save

Run

Output

```
1 #include <stdio.h>
2 int main()
3 {
4     int i, j, n;
5     printf("Enter value of n : ");
6     scanf("%d", &n);
7
8     for(i=1; i<n; i++)
9     {
10         for(j=1; j<=(n-i); j++)
11         {
12             printf(" ");
13         }
14         for(j=i; j<=n; j++)
15         {
16             printf("*");
17         }
18         printf("\n");
19     }
20     for(i=1; i<=n; i++)
21     {
22         for(j=1; j<i; j++)
23         {
24             printf(" ");
25         }
26         for(j=1; j<=i; j++)
27         {
28             printf("*");
29         }
30         printf("\n");
31     }
32     return 0;
33 }
```

```
/tmp/hC3G8Ijiwa.o  
Enter value of n : 10  
  
*****  
  
*****  
  
*****  
  
*****  
  
*****  
  
****  
  
***  
  
**  
  
*  
  
**  
  
***  
  
****  
  
*****  
  
*****  
  
*****  
  
*****
```

III :

main.c



Save

Run

Output

```
1  #include <stdio.h>
2
3  int main() {
4      int numLines;
5      printf("Enter the number of lines: ");
6      scanf("%d", &numLines);
7
8      for (int i = 1; i <= numLines; i++) {
9          for (int j = 1; j <= i; j++) {
10             if (j % 2 == 0) {
11                 printf("0");
12             } else {
13                 printf("1");
14             }
15         }
16         printf("\n");
17     }
18
19     return 0;
20 }
21
```

/tmp/YBgSdBCKC.o

Enter the number of lines: 7

1

10

101

1010

10101

101010

1010101