C PROGRAMMING

PRACTICE PROGRAMS

NAME: S DEEPAK BHARATHWAJ

ROLL NO: CH.SC.U4CSE24015

1. Single line comment

CODE:

```
1  //CH.SC.U4CSE24015
2
3  //This is a single line comment
```

2. Multi line comment

CODE:

```
1  //CH.SC.U4CSE24015
2
3  /*This is a multi line comment
4  and it can be used in multiple lines*/
5
```

3. Break and continue statements

CODE:

```
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    for(int i = 0 ; i<5 ; i++){
        if(i == 2){
            continue;
        }
        if(i == 4){
            break;
        }
    }
    return 1;
}
```

4. Goto – even and odd

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num = 3;
    if (num % 2 == 0)
        goto even;
    else
        goto odd;
even:
    printf("Even number\n");
    return 1;
odd:
    printf("Odd number\n");
    return 1;
}
```

OUTPUT:

```
Odd number

Process returned 1 (0x1)   execution time : 0.080 s
Press any key to continue.
```

5. New line character

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    printf("Hello\nWorld");
    return 1;
}
```

OUTPUT:

```
Hello
World
Process returned 1 (0x1)   execution time : 0.381 s
Press any key to continue.
```

6. Tab line character

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    printf("Welcome \t to \t C");
    return 1;
}
```

OUTPUT:

```
Welcome          to      C
Process returned 1 (0x1)   execution time : 0.342 s
Press any key to continue.
```

7. Typedef program

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
typedef int hii;

int main() {
    hii age = 18;
    printf("Age is : %i", age);
    return 1;
}
```

OUTPUT:

```
Age is : 18
Process returned 1 (0x1)   execution time : 0.462 s
Press any key to continue.
```

8. Input and display of datatypes

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num1;
    float num2;
    char num3;
    printf("Enter int, float, and char : ");
    scanf("%d %f %c", &num1, &num2, &num3);
    printf("Values are : %d, %.2f, %c", num1, num2, num3);
    return 1;
}
```

OUTPUT:

```
Enter int, float, and char : 10 41.2421 D
Values are : 10, 41.24, D
Process returned 1 (0x1)   execution time : 7.134 s
Press any key to continue.
```

9. Display Without Input

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num1 = 10;
    float num2 = 41.242;
    char num3 = 'D';
    printf("Int : %d, Float : %.2f, Char : %c", num1, num2, num3);
    return 1;
}
```

OUTPUT:

```
Int : 10, Float : 41.24, Char : D
Process returned 1 (0x1)   execution time : 0.421 s
Press any key to continue.
```

10. Sum of 2 Numbers with user input values

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int a, b, sum;
    printf("Enter the two numbers: ");
    scanf("%d %d", &a, &b);
    sum = a + b;
    printf("Sum is : %d", sum);
    return 1;
}
```

OUTPUT:

```
Enter the two numbers: 32
48
Sum is : 80
Process returned 1 (0x1)   execution time : 30.064 s
Press any key to continue.
```

11. Usage of Ternary Operator

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int a = 10, b = 20;
    int max = (a > b) ? a : b;
    printf("Greater : %d", max);
    return 1;
}
```

OUTPUT:

```
Greater : 20
Process returned 1 (0x1)   execution time : 0.304 s
Press any key to continue.
```

12. To display a character

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    char ch = 'D';
    printf("Character : %c", ch);
    return 1;
}
```

OUTPUT:

```
Character : D
Process returned 1 (0x1)   execution time : 0.345 s
Press any key to continue.
```

13. To display a string

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    char str[] = "Hello World";
    printf("%s", str);
    return 1;
}
```

OUTPUT:

```
Hello World
Process returned 1 (0x1)   execution time : 0.278 s
Press any key to continue.
```

14. To display a Group of Strings

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    char ch[200];
    printf("Enter the string : ");
    fgets(ch,sizeof(ch),stdin);
    puts(ch);
    return 1;
}
```

OUTPUT:

```
Enter the string : Hello , this is deepak!
Hello , this is deepak!


Process returned 1 (0x1)   execution time : 12.059 s
Press any key to continue.
```

15. C program to check whether a number is positive or negative

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);
    if(num > 0)
        printf("Positive\n");
    else if(num < 0)
        printf("Negative\n");
    else
        printf("Zero\n");
    return 1;
}
```

OUTPUT:

```
Enter a number: 59
Positive

Process returned 1 (0x1)   execution time : 3.988 s
Press any key to continue.
```

16. Reverse an input number using recursion

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    int num , rev = 0, rem;
    printf("Enter the number : ");
    scanf("%d",&num);
    while(num != 0){
        rem = num % 10;
        rev = rev*10 + rem;
        num/=10;
    }
    printf("Reversed number : %d\n",rev);
    return 1;
}
```

OUTPUT:

```
Enter the number : 153
Reversed number : 351

Process returned 1 (0x1)   execution time : 23.702 s
Press any key to continue.
```

17. Program to find greatest of three numbers

CODE:

```c
//CH.SC.U4CSE24015
 #include <stdio.h>
int main() {
    int x, y, z;
    printf("Enter three numbers: ");
    scanf("%d %d %d", &x, &y, &z);
    if(x >= y && x >= z)
        printf("%d is the greatest\n", x);
    else if(y >= x && y >= z)
        printf("%d is the greatest\n", y);
    else
        printf("%d is the greatest\n", z);
    return 1;
}
```

OUTPUT:

```
Enter three numbers: 3
12
7
12 is the greatest

Process returned 1 (0x1)   execution time : 11.128 s
Press any key to continue.
```

18. C Program to print Fibonacci series in a given range

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int n, t1 = 0, t2 = 1, nextTerm;
    printf("Enter number of terms: ");
    scanf("%d", &n);
    printf("Fibonacci Series: ");
    for(int i = 1; i <= n; i++) {
        printf("%d ", t1);
        nextTerm = t1 + t2;
        t1 = t2;
        t2 = nextTerm;
    }
    printf("\n");
    return 1;
}
```

OUTPUT:

```
Enter number of terms: 9
Fibonacci Series: 0 1 1 2 3 5 8 13 21

Process returned 1 (0x1)   execution time : 13.069 s
Press any key to continue.
```

19. C Program to find factorial of a given number

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num;
    long fact = 1;
    printf("Enter a number: ");
    scanf("%d", &num);
    for(int i = 1; i <= num; i++) {
        fact *= i;
    }
    printf("Factorial of %d = %ld\n", num, fact);
    return 1;
}
```

OUTPUT:

```
Enter a number: 8
Factorial of 8 = 40320

Process returned 0 (0x0)   execution time : 4.437 s
Press any key to continue.
```

20. Find Prime numbers in a given range

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int start, end;
    printf("Enter start and end : ");
    scanf("%d %d", &start, &end);
    printf("Prime numbers between %d and %d:\n", start, end);
    for(int num = start; num <= end; num++) {
        int Prime = 1;
        if(num <= 1)
            continue;
        for(int i = 2; i <= num/2; i++) {
            if(num % i == 0) {
                Prime = 0;
                break;
            }
        }
        if(Prime)
            printf("%d ", num);
    }
    printf("\n");
    return 1;
}
```

OUTPUT:

```
Enter start and end : 1 10
Prime numbers between 1 and 10:
2 3 5 7

Process returned 1 (0x1)   execution time : 3.502 s
Press any key to continue.
```

21. C Program to check if given number is Armstrong or not

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
#include <math.h>
int main() {
    int num, sum, temp, i = 0;
    int ans = 0;
    printf("Enter a number: ");
    scanf("%d", &num);
    sum = num;
    while (sum != 0) {
        sum /= 10;
        ++i;
    }
    sum = num;
    while (sum != 0) {
        temp = sum % 10;
        ans += pow(temp, i);
        sum /= 10;
    }
    if(ans == num)
        printf("%d is an Armstrong number.\n", num);
    else
        printf("%d is not an Armstrong number.\n", num);
    return 1;
}
```

OUTPUT:

```
Enter a number: 153
153 is an Armstrong number.

Process returned 1 (0x1)   execution time : 1.894 s
Press any key to continue.
```

22. C Program to check if given number is palindrome or not

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num, rev = 0, temp, sum;
    printf("Enter a number: ");
    scanf("%d", &num);
    sum = num;
    while(num != 0) {
        temp = num % 10;
        rev = rev * 10 + temp;
        num /= 10;
    }
    if(sum == rev)
        printf("%d is a palindrome.\n", sum);
    else
        printf("%d is not a palindrome.\n", sum);
    return 1;
}
```

OUTPUT:

```
Enter a number: 121
121 is a palindrome.

Process returned 1 (0x1)   execution time : 3.015 s
Press any key to continue.
```

23. C Program to display palindrome numbers in a given range

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int start, end;
    printf("Enter start and end : ");
    scanf("%d %d", &start, &end);
    printf("Palindrome numbers between %d and %d:\n", start, end);
    for(int num = start; num <= end; num++) {
        int i = num, rev = 0, temp;
        while(i != 0) {
            temp = i % 10;
            rev = rev * 10 + temp;
            i /= 10;
        }
        if(rev == num)
            printf("%d ", num);
    }
    printf("\n");
    return 1;
}
```

OUTPUT:

```
Enter start and end : 100 300
Palindrome numbers between 100 and 300:
101 111 121 131 141 151 161 171 181 191 202 212 222 232 242 252 262 272 282 292

Process returned 1 (0x1)   execution time : 3.179 s
Press any key to continue.
```

24. C Program to find out the ASCII value of a character

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    char ch;
    printf("Enter the character: ");
    scanf(" %c", &ch);
    printf("ASCII value is : %d\n", ch, ch);
    return 1;
}
```

OUTPUT:

```
Enter the character: A
ASCII value is : 65

Process returned 1 (0x1)   execution time : 2.108 s
Press any key to continue.
```

25. C Program to find the size of int, float, double and char

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    printf("Size of int : %zu bytes\n", sizeof(int));
    printf("Size of float : %zu bytes\n", sizeof(float));
    printf("Size of double : %zu bytes\n", sizeof(double));
    printf("Size of char : %zu bytes\n", sizeof(char));
    return 1;
}
```

OUTPUT:

```
Size of int : 4 bytes
Size of float : 4 bytes
Size of double : 8 bytes
Size of char : 1 bytes

Process returned 1 (0x1)   execution time : 0.562 s
Press any key to continue.
```

26. C Program to find sum of first n natural numbers

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num, sum = 0;
    printf("Enter the number : ");
    scanf("%d", &num);
    sum = num * (num + 1) / 2;
    printf("Sum of first %d natural numbers = %d\n", num, sum);
    return 1;
}
```

OUTPUT:

```
Enter the number : 10
Sum of first 10 natural numbers = 55

Process returned 1 (0x1)   execution time : 2.925 s
Press any key to continue.
```

27. C Program to print integer entered by user

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num;
    printf("Enter an integer : ");
    scanf("%d", &num);
    printf("You entered : %d\n", num);
    return 1;
}
```

OUTPUT:

```
Enter an integer : 15
You entered : 15

Process returned 1 (0x1)   execution time : 0.983 s
Press any key to continue.
```