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Program 1. Introduction to Algorithm and Flowchart

Algorithm :- An algorithm is a procedure used for solving a problem or performing a computation. Algorithms act as an exact list of instructions that conduct specified actions step by step in either hardware- or software-based routines.

Flowchart :- A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows

Difference between Algorithm and Flowchart

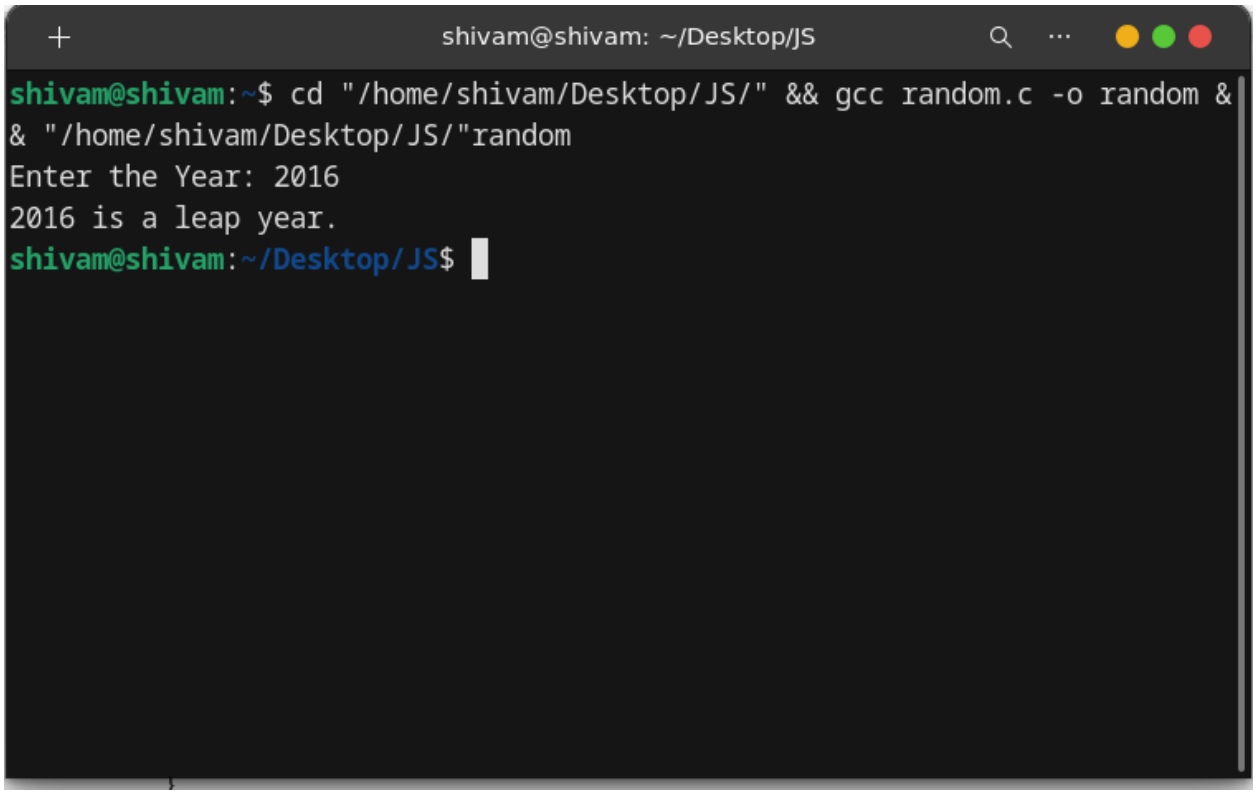
S.no	Algorithm	Flowchart
1.	Algorithms are step by step procedures to solve the problem	Flowchart is a diagram created by different shapes to show the flow of data.
2.	Algorithms are complex to understand.	Flowchart is easy to understand.
3.	In the algorithm plain text is used.	In flowchart, symbols/shapes are used.
4.	Algorithm does not follow any rules.	Flowchart follows rules to be constructed.

Program 2: To check whether an year is Leap year or not

Code:

```
#include<stdio.h>
int main(){
	int year;
	printf("Enter the Year: ");
	scanf("%d", &year);
	if (year % 400 == 0) {
		printf("%d is a leap year.\n", year);
	}

	else if (year % 100 == 0) {
		 printf("%d is not a leap year.\n", year);
	  }

	 else if (year % 4 == 0) {
		printf("%d is a leap year.\n", year);
	}

	else {
		printf("%d is not a leap year.\n", year);
	}

	return 0;
}
```

Output

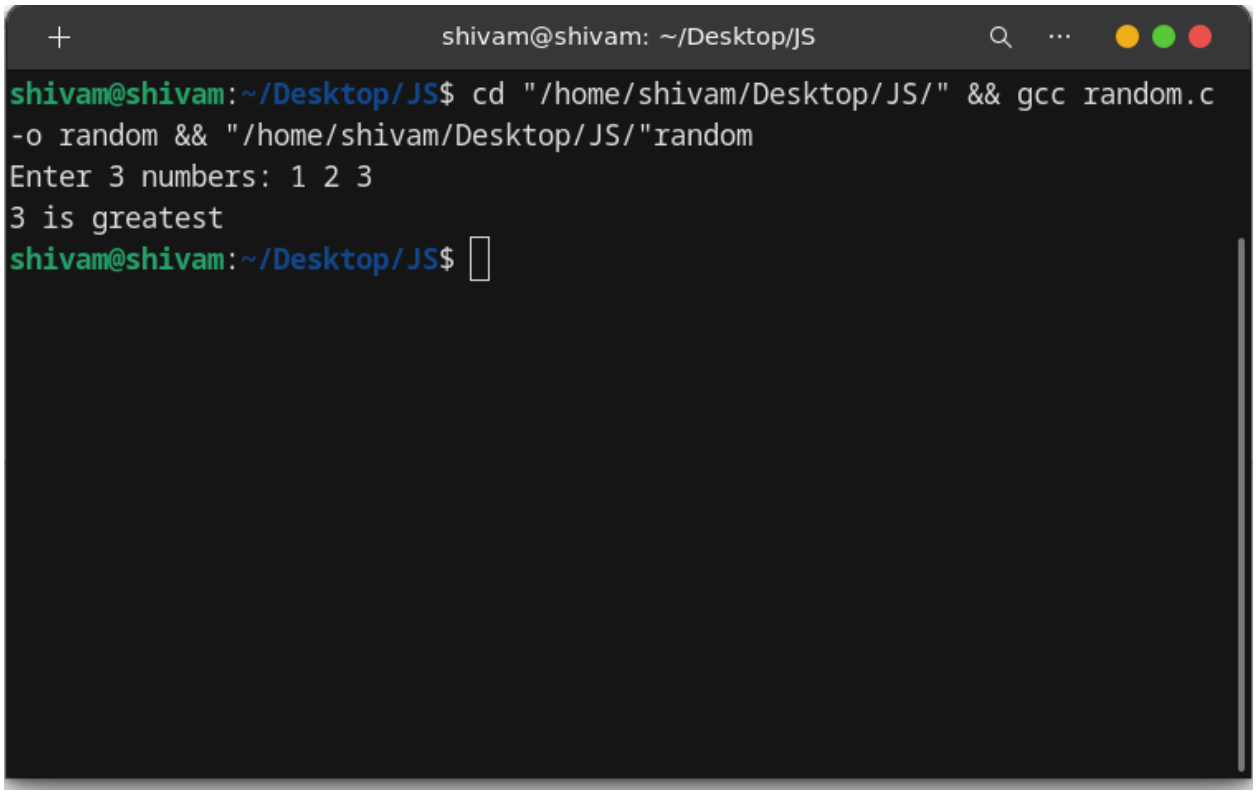

shivam@shivam: ~/Desktop/JS
shivam@shivam:~$ cd "/home/shivam/Desktop/JS/" && gcc random.c -o random &
& "/home/shivam/Desktop/JS/"random
Enter the Year: 2016
2016 is a leap year.
shivam@shivam:~/Desktop/JS$

Program 3: To make a program using nested if

Code:

```
#include<stdio.h>
int main(){
        int a,b,c;
   printf("Enter 3 numbers: ");
   scanf("%d%d%d",&a,&b,&c);
   if(a>b){
      if(a>c){
         printf("%d is greatest\n",a);
      }
   }
   if(b>a){
      if(b>c){
         printf("%d is greatest\n",b);
      }
   }
   if(c>a){
      if(c>b){
         printf("%d is greatest\n",c);
      }
   }

        return 0;
}
```

Output:

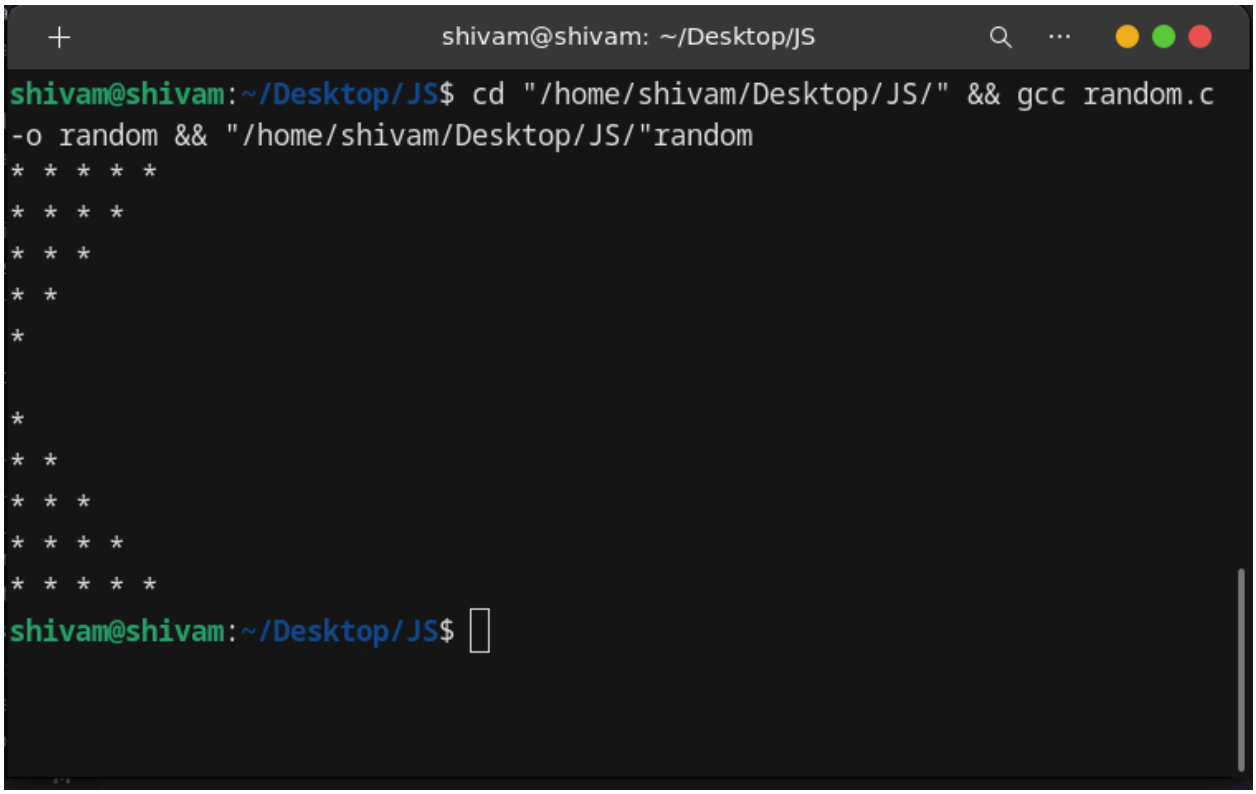

shivam@shivam: ~/Desktop/JS
shivam@shivam:~/Desktop/JS$ cd "/home/shivam/Desktop/JS/" && gcc random.c
-o random && "/home/shivam/Desktop/JS/"random
Enter 3 numbers: 1 2 3
3 is greatest
shivam@shivam:~/Desktop/JS$

Program 4: To print 2 patterns

Code:

```
#include<stdio.h>
int main(){
        int i,j;
        for(i=0;i<5;i++){
            for(j=5;j>i;j--){
                printf("* ");
            }
            printf("\n");
        }
        printf("\n");
        for(i=0;i<5;i++){
            for(j=0;j<=i;j++){
                printf("* ");
            }
            printf("\n");
        }

        return 0;
}
```

Output:


shivam@shivam: ~/Desktop/JS
shivam@shivam:~/Desktop/JS$ cd "/home/shivam/Desktop/JS/" && gcc random.c -o random && "/home/shivam/Desktop/JS/"random
* * * * *
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* * * * *
shivam@shivam:~/Desktop/JS$