

Programming in C/C++ LAB MANUAL

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Lab Exercises for Week 1

Q1. Write a program to demonstrate the use of output statements that draws any object of your choice a. Draw a Christmas tree using '*' b. Draw a pyramid using '*'
Q2. Write a program that reads in a month number and outputs the month name.
Q3. Write a program to demonstrate the use of various input statements like getchar(), getch(),scanf()
Q4. Write a program to demonstrate the overflow and underflow of various data type and their resolution a. Demonstrate the overflow and underflow in integer data type b. Demonstrate the overflow and underflow in char data type c. Demonstrate the resolution of overflow and underflow
Q5. Write a program to demonstrate the precedence of various operators a. Demonstrate the precedence of arithmetic and unary operators b. Demonstrate the precedence of relational and logical operators

Q1. Write a program to demonstrate the use of output statements that draws any object of your choice

```
/* christmas tree*/
```

```
#include<stdio.h>
int main()
{
    int i,l,k,m,j,rows,starNo,spaceNo;
    printf("Enter Rows:\n");
    scanf("%d",&rows);

    for(i=1;i<=rows;i++)
    {
        starNo=i*2-1;
        spaceNo=i+rows-starNo;
        for(j=0;j<spaceNo;j++)
        {
            printf(" ");
        }
        for(k=0;k<starNo;k++)
        {
            printf("*");
        }
        printf("\n");
    }

    for(l=0;l<3;l++)
    {
        for(m=0;m<(rows*2+1)/2;m++)
        {
            printf(" ");
        }
        printf("*\n");
    }
return 0;
}
```

Q2. Write a program that reads in a month number and outputs the month name.

```
#include <stdio.h>
int main()
{
    int monno;
    printf("Input Month No : ");
```

```
scanf("%d",&monno);
switch(monno)
{
    case 1:
        printf("January\n");
        break;
    case 2:
        printf("February\n");
        break;
    case 3:
        printf("March\n");
        break;
    case 4:
        printf("April\n");
        break;
    case 5:
        printf("May\n");
        break;
    case 6:
        printf("June\n");
        break;
    case 7:
        printf("July\n");
        break;
    case 8:
        printf("August\n");
        break;
    case 9:
        printf("September\n");
        break;
    case 10:
        printf("October\n");
        break;
    case 11:
        printf("November\n");
        break;
    case 12:
        printf("December\n");
        break;
    default:
        printf("invalid Month number \n");
        break;
}
```

```
    return 0;
}
```

Q3. Write a program to demonstrate the use of various input statements like getchar(), getch(),scanf()

```
#include<stdio.h>
#include<string.h>
int main()
{
char ch,nm;
char name[20];
int age,i=0;
printf("would you like to enter your details");
printf("enter Y/N");
ch=getch();

if(ch=='Y')
{
printf("enter your name");
while(nm!='\n')
{
nm=getchar();
name[i]=nm;
i++;
}
name[i]='\0';
printf("enter your age");
scanf("%d",&age);

printf("your name is");
for(i=0;i<strlen(name);i++)
printf("%c",name[i]);
printf("your age is");
printf("%d",age);

}
else
{
printf("well,you have not provided the details" );

}
}
```

```
return 0;
}
```

Q4. Write a program to demonstrate the overflow and underflow of various datatype.

```
/* overflow and underflow in integer datatype*/
#include <stdio.h>
int main(void)
{
    int l, x;
    l = 0x40000000;
    printf("l = %d (0x%x)\n", l, l);
    /*addition causing overflow*/
    x = l + 0xc0000000;
    printf("l + 0xc0000000 = %d (0x%x)\n", x, x);

    /* multiplication causing overflow*/
    x = l * 0x4;
    printf("l * 0x4 = %d (0x%x)\n", x, x);
    /* subtraction causing underflow*/
    x = l - 0xffffffff;
    printf("l - 0xffffffff = %d (0x%x)\n", x, x);
    return 0;
}
```

Q5. Write a program to demonstrate the precedence of various operators

```
/* precedence of arithmetic and unary operators*/
int main( )
{
    int ans, val=4;val = val + 1 ;

    printf("ans=%d val=%d\n",ans,val);
    val++ ; ++val ;
    printf("ans=%d val=%d\n",ans,val);
    ans = 2 * val++ ;
    printf("ans=%d val=%d\n",ans,val);
}
```

```
val--;  
--val;  
val;  
val;  
printf("ans=%d val=%d\n",ans,val);  
ans=--val*2;  
printf("ans%dval%d\n", ans, val);  
printf("ans=%dval=%d\n",ans,val);  
ans = val-- / 3 ;  
printf("ans=%d val=%d\n",ans,val);  
return 0;  
}
```

Assignments to be done by students in Lab

1. Draw a pyramid using '*'
2. Demonstrate the overflow and underflow in char data type
3. Demonstrate the resolution of overflow and underflow
4. Demonstrate the precedence of relational and logical operators