

## Assignment - 10 A Job Ready Bootcamp in C++, DSA and IOT

### Functions in C Language

1. **Write a function to calculate the area of a circle. (TSRS)**

```
#include<stdio.h>
float area(int);
int main()
{
    int r;
    float A;
    printf("Enter radius of a circle ");
    scanf("%d",&r);
    A=area(r);
    printf("Area is %.2f",A);

    return 0;
}

float area(int a)
{
    float area;
    area= 3.14*a*a;
    return area;
}
```

2. **Write a function to calculate simple interest. (TSRS)**

```
#include<stdio.h>
float SI(float,float,float);
int main()
{
    float p,r,t,simple;
    printf("Enter principle,rate and time ");
    scanf("%f%f%f",&p,&r,&t);
    simple=SI(p,r,t);
    printf("Simple interest = %.2f",simple);
}

float SI(float a,float b, float c)
{
    float I;
    I= (a*b*c)/100;
    return I;
}
```

3. **Write a function to check whether a given number is even or odd. Return 1 if the number is even, otherwise return 0. (TSRS)**

```
#include<stdio.h>
int even(int);
int main()
{
    int x,y;
    printf("Enter a number ");
    scanf("%d",&x);
    y=even(x);
    printf("%d",y);

    return 0;
}

int even(int a)
{
    if(a%2==0)
        return 1;
    else
        return 0;
}
```

4. **Write a function to print first N natural numbers .(TSRN)**

```
#include<stdio.h>
void natural(int);
int main()
{
    int n;
    printf("Enter a number ");
    scanf("%d",&n);
    natural(n);

    return 0;
}
```

```

void natural(int a)
{
    int i;
    printf("N natural numbers are\n");
    for(i=1;i<=a;i++)
        printf("%d ",i);

    return 0;
}

```

**5. Write a function to print first N odd natural numbers. (TSRN)**

```

#include<stdio.h>

void odd(int);

int main()
{
    int n;
    printf("Enter a number ");
    scanf("%d",&n);
    odd(n);
    return 0;
}

void odd(int a)
{
    int i;
    printf("N odd natural numbers are\n");
    for(i=1;i<=a;i+=2)
        printf("%d ",i);

    return 0;
}

```

**6. Write a function to calculate the factorial of a number. (TSRS)**

```
#include<stdio.h>

int fact(int);

int main()
{
    int n,x;

    printf("Enter a number ");

    scanf("%d",&n);

    x=fact(n);

    printf("Factorial of %d is %d",n,x);

    return 0;
}

int fact(int a)
{
    int i,y=1;

    for(i=a;i>=1;i--)

        y=y*i;

    return y;
}
```

**7. Write a function to calculate the number of combinations one can make from n items and r selected at a time. (TSRS)**

```
#include<stdio.h>

int combi(int,int);

int main()
{
    int n,r,x;

    printf("Enter values of n and r is ");

    scanf("%d%d",&n,&r);
```

```

x=combi(n,r);

printf("combinations is %d",x);
return 0;
}
int combi(int n,int r)
{
    int i,x=1,y=1,z=1,a,b;
    for(i=n;i>=1;i--)
        x=x*i;
    for(i=r;i>=1;i--)
        y=y*i;
    a=n-r;
    for(i=a;i>=1;i--)
        z=z*i;
    b=x/(y*z);
    return b;
}

```

**8. Write a function to calculate the number of arrangements one can make from n items and r selected at a time. (TSRS)**

```

#include<stdio.h>

int permu(int,int);

int main()
{
    int n,r,x;
    printf("Enter values of n and r is ");
    scanf("%d%d",&n,&r);
    x=permu(n,r);
}

```

```

    printf("permu is %d",x);
    return 0;
}
int permu(int n,int r)
{
    int i,x=1,y=1,z=1,a,b;
    for(i=n;i>=1;i--)
        x=x*i;

    a=n-r;
    for(i=a;i>=1;i--)
        y=y*i;

    b=x/y;
    return b;
}

```

**9. Write a function to check whether a given number contains a given digit or not. (TSRS)**

```

#include<stdio.h>
int digit(int,int);
int main()
{
    int x,y=7,z;
    printf("Enter a number ");
    scanf("%d",&x);

    z=digit(x,y);
    if(z==1)
        printf("Digit found");
}

```

```

else

    printf("Digit not found");

return 0;
}

```

```

int digit(int n,int y)
{
    int rem;
    while(n)
    {
        rem=n%10;
        if(rem==y)
            return 1;
        else
            n=n/10;
    }
    return 0;
}

```

**10. Write a function to print all prime factors of a given number. For example, if the number is 36 then your result should be 2, 2, 3, 3. (TSRN)**

```

#include<stdio.h>

void primefun(int);

int main()
{
    int x;

    printf("Enter a number ");

    scanf("%d",&x);

```

```
primefun(x);
```

```
return 0;
```

```
}
```

```
void primefun(int n)
```

```
{
```

```
int i;
```

```
for(i=2;i<=n; )
```

```
if(n%i==0)
```

```
{
```

```
printf("%d ",i);
```

```
n=n/i;
```

```
}
```

```
else
```

```
i++;
```

```
return 0;
```

```
}
```