ASSIGNMENT 17

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Q1. Write a program to swap 2 numbers using point.

Code:

```c
#include <stdio.h>

void swapByRef(int *x, int *y)
{
    int t;
    t = *x;
    *x = *y;
    *y = t;
}
int main()
{
    int a, b;
    printf("Enter numbers: ");
    scanf("%d%d", &a, &b);
    swapByRef(&a, &b);
    printf("Swapped numbers: %d %d", a, b);
    return 0;
}
```

Output:

```
Enter numbers: 12 34
Swapped numbers: 34 12
```

Q2. Write a program to determine the bigger array.

Code:

```c
//find sum of first n elements of two arrays, return 0(equal sum), 1(1st array sum is larger),2(2nd array sum is larger)
#include <stdio.h>

int large_sum(int *a, int *b, int n)
{
    int i, s1=0, s2=0;
    for(i=0;i<n;i++)
    {
        s1+=a[i];
        s2+=b[i];
    }
    if(s1==s2)
        return 0;
    else if(s1>s2)
        return 1;
    else
        return 2;
}

int main()
{
    int x[20] = {0,2,4,6,8,10}, y[15] = {1,3,5,7,9}, g, i;
    printf("Elements of array x: ");
    for(i=0;i<5;i++)
        printf("%d ",x[i]);
    printf("\nElements of array y: ");
    for(i=0;i<5;i++)
        printf("%d ",y[i]);
    g=large_sum(x,y,5);
    printf("\n");
    if(!g)
        printf("Both sums are equal.");
    else if(g==1)
        printf("x is greater than y.");
    else
        printf("y is greater than x.");
}
```

Output:

```
Elements of array x: 0 2 4 6 8
Elements of array y: 1 3 5 7 9
y is greater than x.
```

Q3. Write a program to determine the number of ‘a’ in an array.

Code:

```c
//find number of 'a' present in all names using arrays of a pointer variable
#include <stdio.h>

int main()
{
    char a[]="Yudhistir", b[]="Bhim", c[]="Arjun", d[]="Nakul", e[]="Sahadev", f[]="Karn";
    char *p[5];
    int i,j,count=0;
    p[0]=a; p[1]=b; p[2]=c; p[3]=d; p[4]=e; p[5]=f;

    for(i=0;i<6;i++)
        for(j=0;p[i][j];j++)
            count+=p[i][j]=='a';

    printf("\nNumber of 'a': %d",count);
}
```

Output

```
Number of 'a': 4
```

Q4. Write a program to add elements row-wise in an array.

Code:

```c
//WAP to add elements present is every row of a matrix and store it an array using pointer
#include <stdio.h>

int main()
{
    int i, j, a[4][5]={{1,2,3,4,5},{2,3,4,5,6},{3,4,5,6,7},{4,5,6,7,8}}, b[4]={0,0,0,0};
    int (*pa)[5], *pb;
    pa=a;
    pb=b;

    for(i=0;i<4;i++)
        for(j=0;j<5;j++)
            b[i] = b[i] + a[i][j];

    for(i=0;i<4;i++)
    {
        printf("Sum of elements in row %d: ", i+1);
        printf("%d\n",b[i]);
    }
    return 0;
}
```

Output:

```
Sum of elements in row 1: 15
Sum of elements in row 2: 20
Sum of elements in row 3: 25
Sum of elements in row 4: 30
```

Q5. Write a program to display the factorial of a number using pointers.

Code:

```c
//WAP to find factorial of an integer using pointer and function
#include <stdio.h>

void fact(int n, int *factorial)
{
    *factorial = 1;
    for(int i=1;i<=n;i++)
        *factorial = *factorial*i;
}

int main()
{
    int n, factorial;
    printf("Enter number: ");
    scanf("%d", &n);
    fact(n,&factorial);
    printf("Factorial of %d: %d", n, factorial);
    return 0;
}
```

Output:

```
Enter number: 5
Factorial of 5: 120
```

Q6. Write a program to determine if the given word is a palindrome or not.

Code:

```c
//WAP to check if the given number is a palindrome or not using pointer
#include <stdio.h>

void palindrome(char *word)
{
    char *ptr, *rev;
    ptr = word;

    while (*ptr != '\0')
    {
        ++ptr;
    }
    --ptr;

    for(rev = word; ptr>=rev;)
    {
        if(*ptr == *rev)
        {
            --ptr;
            rev++;
        }
        else
            break;
    }

    if (rev > ptr)
        printf("String is Palindrome");
    else
        printf("String is not a Palindrome");
}

int main()
{
    char a[100];
    printf("Enter word: ");
    scanf("%s",&a);
    palindrome(a);
    return 0;
}
```

Output:

```
Enter word: 23432
String is Palindrome
```