Grand Assignment

Programming Part

```
#include<iostream>
#include<math.h>
#include<iomanip>
using namespace std;
            ArraymaxNo(){
  int n, largest;   //n is the number of elements in the array
   int num[10];
    cout<<"Question 15:\n Program Find maximum element in Array ";
  cout<<"\nEnter number of elements you want to enter: ";
    cin>>n;
   for(int i = 0; i < n; i++) {
      cout<<"Enter Element "<<(i+1)<< ": ";
      cin>>num[i];
                }
   largest = num[0];
   for(int i = 1;i < n; i++) {
      if(largest < num[i])
         largest = num[i];
   }
   cout<<"Largest element in array is: "<<largest;
   }

   ArrayMinNo(){
            int n, smallest;   //n is the number of elements in the array
   int num[10];
```

```
  cout<<"Question 16:\n Program Find Smallest element in Array\n ";
  cout<<"Enter number of elements you want to enter: ";
  cin>>n;
  for(int i = 0; i < n; i++) {
    cout<<"Enter Element "<<(i+1)<< ": ";
    cin>>num[i];
  }  smallest = num[0];
  for(int i = 1;i < n; i++) {
              if(smallest > num[i])
      smallest = num[i];
  }

  cout<<"Smallest element in array is: "<<smallest; }

             printname(){
             string name;   //Q17
            cout<<"Question 17:\n Print name 50 spaces right\nEnter your name\n";
                        cin>>name;
            cout<<setw(50)<<name;

             }
             decision(){
            cout<<"Question 18: the alternate 0f if else with switch\n By if else statements\n ";  int age;
            cout<<"Enter Your Age \t\t\t\t"; cin>>age;
            if(age==18)
            cout<<"You are eligible for ISSB\n";
            else
                        cout<<"Your are not eligible for ISSB";
}
```

```
conditional(){
        cout<<"Challange 18: By Conditional operator \t\t\t\n";  int age;
        cout<<"Enter your age \t\t\t\t"; cin>>age;
        cout<<(age==18? "You are eligible for ISSB": "You are eligible for ISSB");
         }
         floatseparatingtask(){
                        cout<<"Question 19\n";
        cout<<"Separating parts of float datatype "<<endl;
         float dec, j;
         cout<<"Enter any float number"<<endl;
         cin>>dec;
         int integer =dec;
        j = dec-integer;   //3.4-3=0.4
        cout<<"The number is "<<dec<<endl;
        cout<<"The integer part is "<<integer<<endl<<"The decimal part is "<<j;
         }
         circle(){
                cout<<"Question 20\n\t This is a function that calculate area , perimeter of circle\n";
                cout<<"Enter radius \n\t"; int r ,PI=3.14;
                cin>>r; int area=PI*r*r; cout<<"Area of circle is \t"<<area;
                int perimeter=2*PI*r;
                cout<<"\nPerimeter of Circle is \t"<<perimeter;
                cout<<"\n Enter base and prependicular of area of triangle";
                int base,pre; cin>>base; cin>>pre;
                int trianglearea= (base*pre)/2;
                cout<<"The area of triangle is   "<<trianglearea;
        }
                 absolute(){
                cout<<"Question 21\n\t\t\t\t This is absolute function that gives us absolute value \n";
```

```
            int num ,abs;
        cout<<"Enter a number \n";       cin>>num;
            if(num<0) //num less than 0
            cout<<(abs=-num);  // print minus num
            else cout<<(abs=num);
        }
             even(){            //even odd checking function
        int i ;  cout<<"Question 22: \n\tThis is Even Function \n";

        for(i=1; i<=20; i++){
            if(i%2==0) cout<<i<<" is even number \n";
            else cout<<i<<" is Odd number \n";        }
                    }
        agecalculator(){

        int age_year ,month;
        int birth_year ,birth_month;
        int current_year,current_month;
        cout<<"This is age calculator: \n Enter your birth year and month \n";
        cout<<"Year:  "; cin>>birth_year;
        cout<<"Month: "; cin>>birth_month;
        cout<<"\n \n \n Enter a current year and month \n";
        cout<<"Year: "; cin>>current_year;
        cout<<"Month: "; cin>>current_month;

        cout<<"\n\t\t\t\t Your age is calculating..... \n\n";
        age_year=(current_year-birth_year);
        month=(12-birth_month)+current_month;
cout<<"You are "<<age_year<<"  Years and "<<month<<" month old";
```

```
   if(age_year<10&& age_year>0)
   cout<<"You are child \n";
   else if(age_year<20&&age_year>10)
   cout<<"You are adult\n";
   else if(age_year<50&&age_year>20)
   cout<<"You are Young\n";
   else if(age_year<100&&age_year>50)
   cout<<"You are too old\n";


         }
         starname(){
cout<<"This program print your name in stars.....\n\n\n";
cout<<"*******"<<setw(4)<<"*"<<setw(6)<<"*"<<setw(6)<<"*"<<setw(8)<<"***"<<setw(6)<<"*"<<set
w(8)<<"*\n";
cout<<"
*"<<setw(7)<<"*"<<setw(8)<<"*****"<<setw(4)<<"*"<<setw(4)<<"*"<<setw(6)<<"*"<<setw(4)<<"*"<<s
etw(3)<<"*"<<setw(5)<<"*\n";
cout<<"
*"<<setw(7)<<"*"<<setw(12)<<"*"<<setw(4)<<"*"<<setw(3)<<"******"<<setw(4)<<"*"<<setw(4)<<"*"<
<setw(4)<<"*\n" ;
cout<<"
*"<<setw(7)<<"*"<<setw(12)<<"*"<<setw(4)<<"*"<<setw(6)<<"*"<<setw(4)<<"*"<<setw(4)<<"*"<<setw
(4)<<"*\n" ;
cout<<"
*"<<setw(7)<<"*"<<setw(12)<<"*"<<setw(4)<<"*"<<setw(6)<<"*"<<setw(4)<<"*"<<setw(5)<<"*"<<setw
(3)<<"*\n" ;
cout<<"*******"<<setw(4)<<"*"<<setw(12)<<"*"<<setw(4)<<"*"<<setw(6)<<"*"<<setw(4)<<"*"<<setw
(8)<<"**\n";


}
```

```
leapYear(){
        cout<<"Question 25:\n Calculate that year is leap or not \n";
          int year;
cout << "Enter a year: ";   cin >> year;
  if (year % 4 == 0) {   //if year is divisable by 4
    if (year % 100 == 0) {
       if (year % 400 == 0)
          cout << year << " is a leap year.";
       else  cout << year << " is not a leap year.";
    } else  cout << year << " is a leap year.";
} else   cout << year << " is not a leap year.";  }

Matrix() {
 int  i, j,arr[3][3], row,col;    cout<<"Enter no of rows\t"; cin>>row;
cout<<"Enter no of Column\t"; cin>>col;
cout<<"The Two-dimensional Array is:\n";

for(i=0;  i<row; i++)
{ for(j=0; j<col; j++){
      cin>>arr[i][j];       //Storing array elements
                            } }
                            //Displaying array matrix
 for(i=0;  i<row; i++)
{
        for(j=0; j<col; j++){
      cout<<setw(10)<<arr[i][j];
                  }
                   cout<<"\t\n\t";
                  }}
```

```
   currencyconverter(){     //Question 27
      int dollars; float P;
      cout<<"Enter currency in American Dollars"<<endl;
      cin>>dollars;
      P=dollars*102.243;
      cout<<dollars<<"  American dollars are equal to "<<P<<" Pakistani rupees"<<endl;
}
            average(){                    //28
            int a,b,c,d;
            cout<<"Challange 28\n\tThis is average function \n";
            cout<<"Enter a five integers to find it average  ";
            cin>>a>>b>>c>>d;
            cout<<"The average of the numbers are "<<(a+b+c+d/5)<<endl;
            }
int power(int base, int power){
int         result=1;
            for(int i=0;i<power;i++){
                        result = result*base;
            }
            return result;
}

SquareChecking(){
            int n; cout<<"Enter any integer \t"; cin>>n;
                        if (ceil((double)sqrt(n)) == floor((double)sqrt(n)))
                        cout << n<<" perfect square";
                        else
                        cout <<n<< " not a perfect square";
```

```
}
  SequentialSearch(){   //Q31
          float Arr[10], num,count; int i;
          cout<<"Question 31: Its about sequential search\n Enter an Array elements in float\n      ";
                  for(i=1;i<=10;i++)
                  cin>>Arr[i];
                  cout<<"Enter an element you want to find location\n";
                  cin>>num;
                  for(i=0;i<10;i++){
                          if(Arr[i]==num)
                          cout<<num<<" found on location"<<i;
                  } if(i==count)
                  cout<<num<<" is not found on location";
                   }
                     ArrangeinAscending(){  //Q32
  int arr[100];
  int i, j, ascending;
cout<<"Question 33:\tThe program arrange 10 values in ascending order\nEnter elements in array: ";
  for(i=0; i<10; i++)
          cin>>arr[i];
  for(i=0; i<10; i++)   //Sorting an array in ascending order
  { for(j=i+1; j<10; j++)
     {  //If there is a smaller element found on right of the array then swap it.
        if(arr[j] < arr[i]) {
     ascending = arr[i];
     arr[i] = arr[j];
     arr[j] = ascending;   }}}
  cout<<"Elements of array in sorted ascending order:"<<endl;
  for(i=0; i<10; i++)
```

```
            cout<<arr[i]<<endl;
}

 ArrangeinDescending(){  //Q33
int num[10],i, j, desc;
          cout<<"\n Enter 10 Numbers : \n";
            cout<<" ";
 for (i = 0; i < 10; ++i)
            cin>>num[i];
for (i = 0; i < 10; ++i)   //  'for' loop is used for sorting the numbers in descending order
{ for (j = i + 1; j < 10; ++j){
if (num[i] < num[j])  {
desc = num[i];
num[i] = num[j];
num[j] = desc; }}}
cout<<"\n Numbers in Descending Order : \n";
for (i = 0; i < 10; ++i)
cout<<num[i]<<endl;
}

evenOdd(){
          int arr[10] ,i;
          cout<<"This program finds even and odd from 1 to 10\n";
          for(i=1;i<=10;i++){
          if(i%2==0) cout<<i<<" is an even number\n";
          else cout<<i<<" is an odd number\n"; }}

            factOfArray(){   //Q36
                    int arr[10], i,fact=1;
```

```
                cout<<"Enter 10 values & the program finds each number factorial\n";
                for(i=1; i<=10;i++)
                cin>>arr[i];

                for(i=1; i<=10;i++){

                 for(int j=1; j<=arr[i]; j++)
                fact =fact*j  ;

                 cout<<"The factorial of "<<arr[i]<<" is "<<fact<<endl;
                 fact=1;
        }}

                  switchpractice(){
int n;
cout<<"Question 37\tThis program will change the number into text \nEnter a number from 0 to 9\n";
cin>>n;
switch(n){
        case 0: (n==0); cout<<"Zero"; break;
        case 1: (n==1); cout<<"One"; break;
        case 2: (n==2); cout<<"TWO"; break;
        case 3: (n==3); cout<<"Three"; break;
        case 4: (n==4); cout<<"Four"; break;
        case 5: (n==5); cout<<"Five"; break;
        case 6: (n==6); cout<<"Six"; break;
        case 7: (n==7); cout<<"Seven"; break;
        case 8: (n==8); cout<<"Eight"; break;
        case 9: (n==9); cout<<"Nine"; break;
}}
```

```
  IntegerChecking()
  {  int Check[5],i,j;
          cout<<"Question 38: Determine positive , negitive or zero number\n Enter five numbers\n";
          for(i=0;i<5;i++)
          cin>>Check[i];

           for(i=0;i<5;i++){
                    if(Check[i]<0)
                    cout<<i<<" is negative numbers\n";
                    if(Check[i]>0)
                    cout<<i<<" is positive number\n";
                    else
                    cout<<i<<" is zero\n";
                    }}

          void tables(){     //table function  //Q40
                     int multiplier, table[8]={2,3,4,5,6,7,8,9};
                     cout<<"This is a table function \n";
                    for(int i=2; i<=9; i++){
                              cout<<"\n The Table of "<<i<<endl;
                    for(int j=1;j<=10;j++)
                      cout<<i<<" * "<<j<<" = "<<i*j<<endl;
        }}



int main(){
          int n; cout<<"Grand ASSIGNMENT\n\t PROGRAMMING PART\n";
```

```
while(1)
{
cout<<"\n\nPress 0 for Exit "<<endl;
cout<<"The Programming part have a questions from 15 to 40 \n";
cout<<"Type question number and program show the calculation of that question "<<endl;

cin>>n;



        switch(n)
{
   case 0:
        exit(0);
        break;
        case 15:
                        ArraymaxNo();
                break;
        case 16:
        ArrayMinNo();
                break;
        case 17:
                printname();  //Q17
                break;
        case 18:
           decision();
                 conditional();  //18
                break;
        case 19:
           floatseparatingtask();
```

```
                    break;
case 20:
                      circle();
                    break;
            case 21:
            absolute();            //Q40
                    break;
            case 22:
        even();
                    break;
            case 23:
          agecalculator( );
                    break;
            case 24:
          starname( );
                    break;
            case 25:
        leapYear();
                    break;
            case 26:
                              Matrix();
                    break;
            case 27:
         currencyconverter();
                    break;
            case 28:
          average();
                    break;
            case 29:
```

```
cout<<power(3,2);
                        break;
                case 30:
            SquareChecking();
                        break;
                case 31:
                         SequentialSearch();
                break;

                case 32:
                                    //binarySearch
                break;

                case 33:
                ArrangeinAscending();
                break;

                case 34:
                ArrangeinDescending();
                break;

        case 35:
            evenOdd();
                break;

        case 36:
                 factOfArray();
                break;
```

```
                case 37:
                switchpractice();
                break;

                case 38:
                IntegerChecking();
                 break;

                case 39:
                  tables();
                break;
                default:
                        cout<<"invalid !! ";
                        break;

}
}

return 0;
}
```