//Source code Scientific calculator

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# include <iostream>
 # include <cmath>
 using namespace std;

void sum(float a,float b,float &c); void subt(float a,float b,float &c); void mult(float a,float b,float &c);
void div(float a,float b,float &c);
 void mod(int d,int e,int &f );void pow(int d,int e,int &f );void sqrt(float a,float &b);

 int main()
{ do{
        char o; float a,b,c;
        int d,e,f;
        cout<<"\t**********Calculator**********\n";
        cout<<"\n\t1. To permorm addition press +:\n"<<"\t2. To perform subtraction press -:\n"<<"\t3.
To perform multiplication press *:\n";
        cout<<"\t4. To perform division press /:\n"<<"\t5. To calculate modulo press %:\n"<<"\t6. To
calculate power press ^\n"<<"\t7. To calculate matrix addition press a:\n";
        cout<<"\t8. To calculate square root press s:\n"<<"\t9. To calculate factorial press
!:\n"<<"\t10.To calculate cos@ press 1:\n";
        cout<<"\t11.To calculate sin@ press 2:\n"<<"\t12.To calculate tan@ press 3:\n";
         cin>>o;

        switch (o) {

                case '+': {

        cout<<"Enter 1st numuber";cin>>a;
        cout<<"Enter 2nd number";cin>>b;
```

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 sum(a,b,c);
 cout<<c;
break;}



    case  '-': {
          cout<<"Enter 1st numuber";cin>>a;
cout<<"Enter 2nd number";cin>>b;
subt(a,b,c);
cout<<c;
          break;}
 case '*':  {
          cout<<"Enter 1st numuber";cin>>a;
cout<<"Enter 2nd number";cin>>b;
mult(a,b,c);
cout<<c;
          break;}
 case '/':  {
          cout<<"Enter 1st numuber";cin>>a;
cout<<"Enter 2nd number";cin>>b;
div(a,b,c);
cout<<c;
          break;}
 case '%':  {
          cout<<"Enter 1st numuber";cin>>d;
cout<<"Enter 2nd number";cin>>e;
mod(d,e,f);
cout<<f;
          break;}
```

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          case '^':  {
                    cout<<"Enter the numuber whose poewer you wanna calculate ";cin>>d;
          cout<<d<<"^";cin>>e;
          pow(d,e,f);
          cout<<f;
                    break;}
          case 'a' :{ int r, c, a[r][c], b[r][c], sum[r][c], i, j;

cout << "Enter number of rows (between 1 and 100): ";
cin >> r;

cout << "Enter number of columns (between 1 and 100): ";
cin >> c;

cout << endl << "Enter elements of 1st matrix: " << endl;

for(i = 0; i < r; ++i)
  for(j = 0; j < c; ++j)
  {
     cout << "Enter element a" << i + 1 << j + 1 << " : ";
     cin >> a[i][j];
  }

cout << endl << "Enter elements of 2nd matrix: " << endl;
for(i = 0; i < r; ++i)
  for(j = 0; j < c; ++j)
  {
     cout << "Enter element b" << i + 1 << j + 1 << " : ";
     cin >> b[i][j];
```

```
    }

  for(i = 0; i < r; ++i)
    for(j = 0; j < c; ++j)
      sum[i][j] = a[i][j] + b[i][j];

  cout << endl << "Sum of two matrix is: " << endl;
  for(i = 0; i < r; ++i)
    for(j = 0; j < c; ++j)
    {
      cout << sum[i][j] << "  ";
      if(j == c - 1)
        cout << endl;
    }

  return 0;
}   case 's':{     cout<<"Enter the numuber whose square root you wanna calculate ";cin>>a;
        cout<<a<<"sqrt =";
        sqrt(a,b);
        cout<<b;}

              break;
       case '!':{          cout<<"Enter the numuber whose factorial you wanna calculate ";cin>>a;
        int n=1;
              for (int i=1;i<=a;++i){
        n*=i;
              }
              cout<<a<<"! ="<<n;
```

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                    break;
                }
        case '1':{ cout<<"Enter the value to calculate cos@ in radian";cin>>a; b=cos(a);cout<<b;
                break;
        }
        case '2':{ cout<<"Enter the value to calculate sin@ in radian";cin>>a; b=sin(a);cout<<b;
                break;
        }
        case '3':{ cout<<"Enter the value to calculate tan@ in radian";cin>>a; b=tan(a);cout<<b;
                break;
        }
                default: cout<<"\t\t*****Invalid choice*****\n";
         }



} while(true);}
void sum(float a,float b,float &c) { c= a+b;
}
void subt(float a,float b,float &c) { c= a-b;
}
void mult(float a,float b,float &c) { c= a*b;
}
void div(float a,float b,float &c) { c= a/b;
}
void mod(int d,int e,int &f) { f= d%e;
}
void pow(int d,int e,int &f ){f= pow(d,e);
```

```
}
 void sqrt(float a,float &b){b= sqrt(a);
}
```