PIP CALCULATOR ALGORITHM

- **What is PIP?**
  PIP is an acronym for "percentage in point". A pip is the smallest price move that an exchange rate can make based on forex market convention. Most currency pairs are priced out to four decimal places and the pip change is the last (fourth) decimal point. A pip is thus equivalent to 1/100 of 1% or one basis point.
  In practical terms, a pip is one-hundredth of one percent, or the fourth decimal place (0.0001).

- **What is PIP value?**
  PIP is unit less. But if we want to convert it into any desire currency Like USD, CAD etc Then it is called PIP value. So in any currency pair for every pip point how many desire currency is changed it is called PIP value. It depends upon lot size.
  Ex:- you Buy 1 lot(10000 unit)USD/CAD=0.9532 after sometimes USD/CAD=0.9530
  Then PIP=2 basis point down
  Total loss=0.0002*10000=2 CAD
  PIP value= (TOTAL up/down)/PIP   CAD/PIP
  But if we want to display this Value to other currency per PIP then We need to convert this currency to desire currency.

Algorithm for PIP Value calculator:-

STEP 1:- Set **PIP**=0.0001 basis point

STEP 2:- Take **TRADE SIZE**

STEP 3:-Select BASE currency

STEP 4: Select currency pair , If your currency is in Japanese yen then multiply pip by 100 and if BASE currency is "USD,EUR,CHF,RUB" multiply again 100 to pip. Then go to STEP 5.

STEP 5:- If BASE currency is same as which currency you have then follow the STEP 6 Otherwise go to STEP 7.

STEP 6:- Multiply TRADE SIZE and PIP and this value is our PIP VALUE but if BASE currency and go to STEP 9.

STEP 7: Convert your unit currency to standard currency (USD) and if USD is your BASE currency go to STEP 6 otherwise go to STEP 8;

STEP 8: Convert unit USD to Base currency and multiply it to PIP and go to STEP 6;
STEP 9: Now pip is pip Value and print it. It's unit is BASE currency per basis point.
     END
Program with test data:-

```cpp
#include<iostream>
#define N 30
using namespace std;
class data
{
    public:
    string c1;
    string c2;
    double p;
}obj[N];
bool find(string x,string y)
{
    for(int i=0;i<N;i++)
    {
        if(x==obj[i].c1&&y==obj[i].c2)
        return 1;
    }
    return 0;
}
double price(string x,string y)
{
    for(int i=0;i<N;i++)
    {
        if((x==obj[i].c1)&&(y==obj[i].c2))
        return obj[i].p;
    }
    return 1;
}
void SET()
{
    obj[0].c1="AUD";obj[0].c2="CAD";obj[0].p=0.9533;
    obj[1].c1="AUD";obj[1].c2="CHF";obj[1].p=0.6599;
    obj[2].c1="AUD";obj[2].c2="JPY";obj[2].p=75.44;
    obj[3].c1="AUD";obj[3].c2="NZD";obj[3].p=1.0793;
    obj[4].c1="AUD";obj[4].c2="USD";obj[4].p=0.7163;
    obj[5].c1="CAD";obj[5].c2="JPY";obj[5].p=79.13;
```

```cpp
  obj[6].c1="CHF";obj[6].c2="JPY";obj[6].p=114.28;
  obj[7].c1="EUR";obj[7].c2="AUD";obj[7].p=1.6360;
  obj[8].c1="EUR";obj[8].c2="CAD";obj[8].p=1.5593;
  obj[9].c1="EUR";obj[9].c2="CHF";obj[9].p=1.0795;
  obj[10].c1="EUR";obj[10].c2="GBP";obj[10].p=0.9055;
  obj[11].c1="EUR";obj[11].c2="JPY";obj[11].p=123.39;
  obj[12].c1="EUR";obj[12].c2="NZD";obj[12].p=1.7654;
  obj[13].c1="EUR";obj[13].c2="USD";obj[13].p=1.1716;
  obj[14].c1="GBP";obj[14].c2="AUD";obj[14].p=1.8063;
  obj[15].c1="GBP";obj[15].c2="CAD";obj[15].p=1.7220;
  obj[16].c1="GBP";obj[16].c2="CHF";obj[16].p=1.1922;
  obj[17].c1="GBP";obj[17].c2="JPY";obj[17].p=136.26;
  obj[18].c1="GBP";obj[18].c2="NZD";obj[18].p=1.9498;
  obj[19].c1="GBP";obj[19].c2="USD";obj[19].p=1.2938;
  obj[20].c1="NZD";obj[20].c2="JPY";obj[20].p=69.88;
  obj[21].c1="NZD";obj[21].c2="USD";obj[21].p=0.6637;
  obj[22].c1="USD";obj[22].c2="BRL";obj[22].p=5.6833;
  obj[23].c1="USD";obj[23].c2="CAD";obj[23].p=1.3309;
  obj[24].c1="USD";obj[24].c2="CHF";obj[24].p=0.9214;
  obj[25].c1="USD";obj[25].c2="CNY";obj[25].p=6.7908;
  obj[26].c1="USD";obj[26].c2="INR";obj[26].p=73.295;
  obj[27].c1="USD";obj[27].c2="JPY";obj[27].p=105.30;
  obj[28].c1="USD";obj[28].c2="RUB";obj[28].p=78.1851;
  obj[29].c1="USD";obj[29].c2="TRY";obj[29].p=7.7739;

}
/*******************************************************/
int main()
{
  SET();
  double basis=0.0001,pip,price1;
  int lot_size;
  string DC,x1,x2;
  cout<<"enter lotsize and DC"<<endl;
  cin>>lot_size;
  cout<<"enter BASE currency(display currency) "<<endl;
  cin>>DC;
```

```cpp
    pip=basis*lot_size;
/********************************************************/

while(1)
  {
    cout<<"enter currency you have"<<endl;
    cin>>x2;
    if(x2=="JPY")
    {
      pip=pip*100;
      if(DC=="USD"||DC=="EUR"||DC=="CHF"||DC=="RUB")
       pip=pip*100;
    }
    if(DC==x2)
    {
      //pip=pip;
    }
    else if(find("USD",x2))
    {
     pip=pip/price("USD",x2);
      if(DC!="USD")
      {
        if(find("USD",DC))
        {
         pip=pip*price("USD",DC);
        }
        else if(DC,"USD")
        {
          pip=pip/price(DC,"USD");
        }

      }


    }
    else if(find(x2,"USD"))
```

```cpp
        {
          pip=pip*price(x2,"USD");
          if(DC!="USD")
          {
            if(find("USD",DC))
            {
             pip=pip*price("USD",DC);
            }
            else if(DC,"USD")
            {
               pip=pip/price(DC,"USD");
            }

          }
        }
        else if("USD"==x2)
        {

            if(find("USD",DC))
            {
             pip=pip*price("USD",DC);
            }
            else if(DC,"USD")
            {
               pip=pip/price(DC,"USD");
            }
        }
        else
        {
         cout<<"enter wrong DC write again"<<endl;
         cin>>DC;
        }
        cout<<pip<<endl;
        pip=0.0001*lot_size;

    }
}
```

Account Currency: CAD ⌄

Trade size: 100000   Units

→ Calculate

Currency	Price	Standard Lot (Units 100,000)	Mini Lot (Units 10,000)	Micro Lot (Units 1,000)	Pip Value
AUD/CAD	0.9533	C$ 10.00	C$ 1.00	C$ 0.10	C$ 10.00
AUD/CHF	0.6599	C$ 14.44	C$ 1.44	C$ 0.14	C$ 14.44
AUD/JPY	75.44	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
AUD/NZD	1.0793	C$ 8.83	C$ 0.88	C$ 0.09	C$ 8.83
AUD/USD	0.7163	C$ 13.31	C$ 1.33	C$ 0.13	C$ 13.31
CAD/JPY	79.13	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
CHF/JPY	114.28	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
EUR/AUD	1.6360	C$ 9.53	C$ 0.95	C$ 0.10	C$ 9.53
EUR/CAD	1.5593	C$ 10.00	C$ 1.00	C$ 0.10	C$ 10.00
EUR/CHF	1.0795	C$ 14.44	C$ 1.44	C$ 0.14	C$ 14.44
EUR/GBP	0.9055	C$ 17.22	C$ 1.72	C$ 0.17	C$ 17.22
EUR/JPY	123.39	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
EUR/NZD	1.7654	C$ 8.83	C$ 0.88	C$ 0.09	C$ 8.83
EUR/USD	1.1716	C$ 13.31	C$ 1.33	C$ 0.13	C$ 13.31
GBP/AUD	1.8063	C$ 9.53	C$ 0.95	C$ 0.10	C$ 9.53
GBP/CAD	1.7220	C$ 10.00	C$ 1.00	C$ 0.10	C$ 10.00
GBP/CHF	1.1922	C$ 14.44	C$ 1.44	C$ 0.14	C$ 14.44
GBP/JPY	136.26	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
GBP/NZD	1.9498	C$ 8.83	C$ 0.88	C$ 0.09	C$ 8.83
GBP/USD	1.2938	C$ 13.31	C$ 1.33	C$ 0.13	C$ 13.31
NZD/JPY	69.88	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
NZD/USD	0.6637	C$ 13.31	C$ 1.33	C$ 0.13	C$ 13.31
USD/BRL	5.6833	C$ 2.34	C$ 0.23	C$ 0.02	C$ 2.34
USD/CAD	1.3309	C$ 10.00	C$ 1.00	C$ 0.10	C$ 10.00
USD/CHF	0.9214	C$ 14.44	C$ 1.44	C$ 0.14	C$ 14.44
USD/CNY	6.7908	C$ 1.96	C$ 0.20	C$ 0.02	C$ 1.96
USD/INR	73.295	C$ 0.00	C$ 0.00	C$ 0.00	C$ 0.00
USD/JPY	105.30	C$ 12.64	C$ 1.26	C$ 0.13	C$ 12.64
USD/RUB	78.1851	C$ 0.17	C$ 0.02	C$ 0.00	C$ 0.17
USD/TRY	7.7739	C$ 1.71	C$ 0.17	C$ 0.02	C$ 1.71