

## Problem 1:

```
1 //Xinyang He
2 //001059405
3 //Problem 1
4
5 #include <iostream>
6 using namespace std;
7
8 void SwapP(int *a,int *b){// pass-by-pointer
9     int c;
10    c=*a;//&c point to *a
11    *a=*b;//a point to *b
12    *b=c;//b point to c, c=*a
13 }
14
15 void SwapR(int &a,int &b){// pass-by-reference
16     int c;//intermediate variables
17     c=a;
18     a=b;
19     b=c;
20 }
21
22 int main(){//main fuction
23     int m1,n1;
24     cout<<"Please print for test SwapP:".
```

```
Please print for test SwapP:1 2
2 1
Please print for test SwapR:-1 -2
-2 -1
Program ended with exit code: 0
```

## Problem 2:

```
1 //Xinyang He
2 //001059405
3 //Problem 2
4
5 # include <iostream>
6 using namespace std;
7 int main ()
8 {
9     int x = 1, y = 9;
10    int *p1, *p2;
11    p1 = &x;
12    p2 = &y;
13
14    int **q1,**q2;//secondary pointer
15    q1 = &p1;
16    q2 = &p2;
17    int *t = *q1;//swap p1 and p2 by change the direction of q1
        and q2
18    *q1=*q2;
19    *q2=t;
20
21    cout << *p1 << " and " << *p2 << endl; // Prints "9 and 1"
22    return 0;
23 }
```

9 and 1  
Program ended with exit code: 0

### Problem 3:

```
1 //Xinyang He
2 //001059405
3 //Problem 3
4
5 #include <iostream>
6 using namespace std;
7
8 // INSERTION-SORT
9 void insertionSort(int arr[],string name[],int n)
10 {
11
12     for (int i = 1; i < n; i++) {//compare every number to the
        before list
13         int j=i;
14         if(arr[i]>100 || arr[i]<0)//if score illegal,change it to
```

```
Total Number of Student: 5
Student name and score(Sample:A 70
      B 50 C 90...):
abc 10 bcd 100 cde 101 def -10 efg
      50

Final list:
bcd 100
efg 50
abc 10
cde 0
def 0
Program ended with exit code: 0
```