

Programming with C

Assignment 4

Due: Next Section.

Notes: This assignment is individual assignment, every student should complete it by himself.

1. (5 points) Create a C++ project and copy the following code to it, then compile the program and answer the questions:

```
1. #include <iostream>
2. using namespace std;
3.
4. int main()
5. {
6.     double x,y;
7.     int opcode;
8.
9.     cout<<"please enter two numbers:";
10.    cin>>x>>y;
11.    cout<<"\n1. x+y\n2. x*y\n3. x/y\nchoose operation:";
12.    cin>>opcode;
13.
14.    if(opcode==1)
15.        cout<<"\nx+y="<<x+y<<endl;
16.    else if(opcode==2)
17.        cout<<"\nx*y="<<x*y<<endl;
18.    else if(opcode==3)
19.        cout<<"\nx/y="<<x/y<<endl;
20.
21. }
```

- Run the program, give $x=8$, $y=4$, $opcode=2$. What is the output?
- Add (`else cout<<"error";`) to line 20. Run the program, give $x=2$, $y=5$, $opcode=9$. What is the output?
- Add semicolon at the end of line 14 (`if(opcode==1);`). Run the program, give $x=1$, $y=2$, $opcode=2$. What is the output?
- Change line 7 to (`double opcode`) and repeat question (a).

2. (5 points) Create a C++ project and copy the following code to it, then compile the program and answer the questions:

```

1. #include <iostream>
2. using namespace std;
3.
4. int main()
5. {
6.     double x,y;
7.     int opcode;
8.     char again;
9.
10.    while(1)
11.    {
12.        cout<<"please enter two numbers:";
13.        cin>>x>>y;
14.        cout<<"\n1. x+y\n2. x*y\n3. x/y\nchoose operation:";
15.        cin>>opcode;
16.
17.        switch(opcode){
18.            case 1:
19.                cout<<"\nx+y="<<x+y<<endl;
20.                break;
21.            case 2:
22.                cout<<"\nx*y="<<x*y<<endl;
23.                break;
24.            case 3:
25.                cout<<"\nx/y="<<x/y<<endl;
26.                break;
27.            default:
28.                cout<<"Error....";
29.        }
30.        cout<<"\nagain:";
31.        cin>>again;
32.        if(again=='N' || again=='n')
33.            break;
34.    }
35.    return 0;
36. }
```

- Run the program, give $x=8$, $y=4$, $opcode=1$, $again='n'$. What is the output?
- Remove line 20 and repeat question (a). What is the output?
- Remove lines 32, and 33 and replace line 10 with `(while(again=='N' || again=='n'))` then repeat question (a). What is the output?
- Add semicolon at the end of line 17 (`while(1);`) and run the program. What is the output?
- Change line 7 to (`double opcode`) and repeat question (a).

3. (5 Points) Write a program that determines a student's grade. The program will read three types of scores (quiz "10 points ", mid-term "30 points", and final scores "60 points") and determine the grade based on the following rules:

- a. if the (score = 90) => grade=A
- b. if the (score >= 70 and < 90) => grade=B
- c. if the (score >= 50 and < 70) => grade=C
- d. if the (score < 50) => grade=F

The output should look as following:

Enter the (Quiz, Mid-Term, Final) scores: **5, 20, 45**

Grade= **B**

4. (5 Points) Write a program to detect key presses. If the user pressed number keys (from 0 to 9), the program will display the number that is pressed, otherwise the program will show "Not allowed". The output should look as following:

Press a number key: **5**

You pressed: **5**

Again (Y\N): **Y**

Press a number key: **m**

Not allowed.

Again (Y\N): **N**