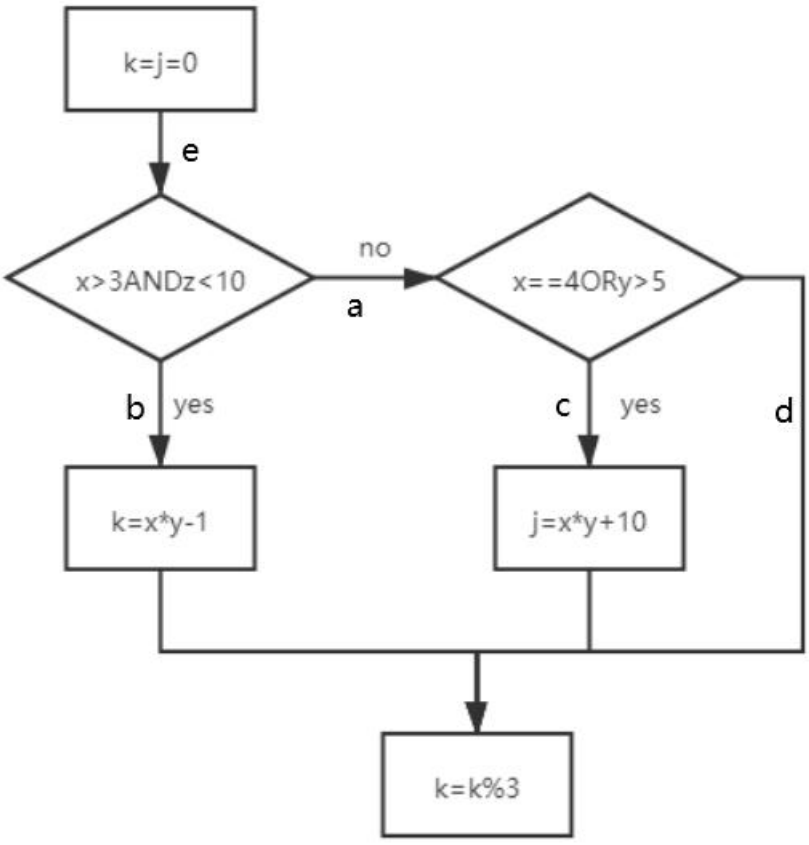
1、给定下面的程序段，要求用白盒测试法对其进行测试。依据**判定覆盖、条件组合覆盖** 2 种覆盖标准，请首先绘制**流程图**，然后设计出 **2 组**满足相应覆盖标准的“**最小**”的测试用例集。（共 10 分）

```
void MyFunc(int x, int y, int z, int &j, int k)
                                                    {
    j=k=0;
    if( (x>3) && (z<10))    k=x*y-1;
    else if ((x==4) || (y>5))    j=x*y+10;
    k=k%3;
}
```

答:

（1）流程图;



(2)

a.判定覆盖

将所有条件定义为:

T1 = x>3;T2 = x<=3;

T3 = z<10;T4 = z>=10;

T5 = x==4;T6 = x!=4;

T7 = y>5;T8 = y<=5;

测试用例必须保证以上条件至少出现一次并且执行路径eb^eac^ead

最小测试用例集为：[3,6,10],[3,4,10][4,6,9]

b.条件组合覆盖

满足以下覆盖情况:

1.x>3,z<10　2.x>3,z>=10

3.x<=3,z<10　4.x<=3,z>=10

5,x==4,y>5　6.x==4,y<=5

7.x!=4,y>5　8.x!=4,y<=5

用例编号	测试用例	覆盖条件	覆盖路径
1	X=4;y=6;z=9	(x>3)and(z<10),(x==4)or(y>5)	eb
2	X=4;y=5;z=10	(x>3)and(z>=10),(x==4)or(y<=5)	eac
3	X=3;y=6;z=9	(x<=3)and(z<10),(x!=4)or(y>5)	eac
4	X=3;y=5;z=9	(x<=3)and(z>=10),(x!=4)or(y<=5)	ead

最小测试用例为[4,6,9],[4,5,10],[3,6,9],[3,5,9]

1、给定下面的程序段，要求用白盒测试法对其进行测试。首先绘制代码对应的控制流图，然后分别给出满足下面覆盖标准的“测试路径”。

（1） 点/边覆盖；

（2） 边对覆盖；

（3） 主路径覆盖。

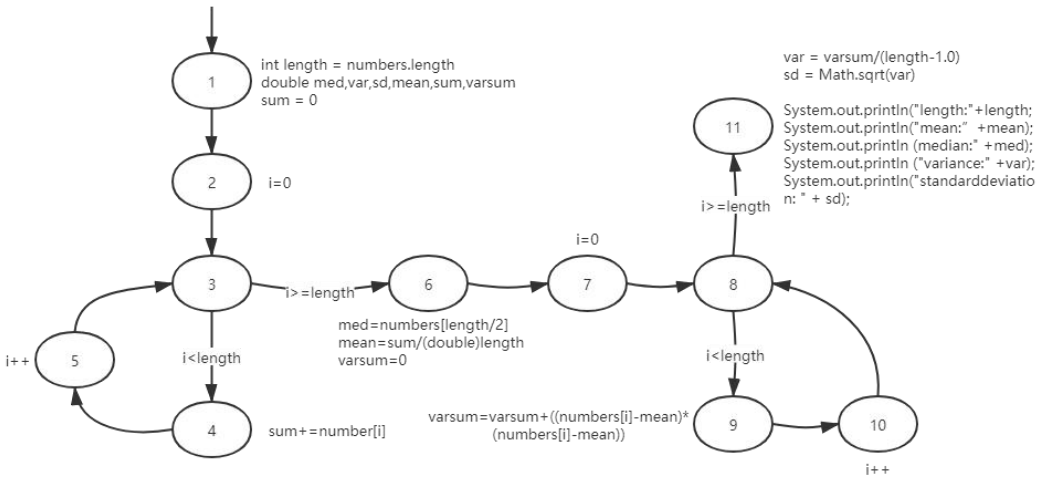
```
public static void computeStats (int [ ] numbers)
{
    int length = numbers.length;
    double med, var, sd, mean, sum, varsum;

    sum = 0;
    for (int i = 0; i < length; i++)
    {
        sum += numbers [ i ];
    }
    med   = numbers [ length / 2];
    mean = sum / (double) length;

    varsum = 0;
    for (int i = 0; i < length; i++)
    {
        varsum = varsum  + ((numbers [ I ] - mean) * (numbers [ I ] - mean));
    }
    var = varsum / ( length - 1.0 );
    sd  = Math.sqrt ( var );

    System.out.println ("length:                " + length);
    System.out.println ("mean:                  " + mean);
    System.out.println ("median:                " + med);
    System.out.println ("variance:              " + var);
    System.out.println ("standard deviation: " + sd);
}
```

控制流图



（1）点/边覆盖；

点覆盖：

[1,2,3,4,5,6,7,8,9,10,11]
测试路径：
[1,2,3,4,5,3,6,7,8,9,10,8,11]
边覆盖：
{(1,2),(2,3),(3,4),(4,5),(5,3),(3,6),(6,7),(7,8),(8,9),(9,10),(10,8),(8,11)}
测试路径:
[1,2,3,4,5,3,6,7,8,9,10,8,11]
（2）边对覆盖；
{[1,2,3],[2,3,4],[2,3,6],[3,4,5],[3,6,7],[4,5,3],[5,3,6],[5,3,4],[6,7,8],[7,8,9],[7,8,11],[8,9,10],[9,10,8],[10,8,9],[10,8,11]}
测试路径:
[1,2,3,6,7,8,11],[1,2,3,4,5,3,6,7,8,9,10,8,11]
（3）主路径覆盖。
[1,2,3,4,5],[1,2,3,6,7,8,11],[1,2,3,6,7,8,9],[3,4,5],[5,3,4],[8,9,10],[10,8,9],[4,5,3,6,7,8,9,10],[4,5,3,5,7,8,11]
测试路径：
[1,2,3,4,5,3,6,7,8,9,10,8,11]
[1,2,3,4,5,3,4,5,3,6,7,8,9,10,8,9,10,8,11]
[1,2,3,4,5,3,6,7,8,11]
[1,2,3,6,7,8,9,10,8,11]
[1,2,3,6,7,8,11]