The code is :

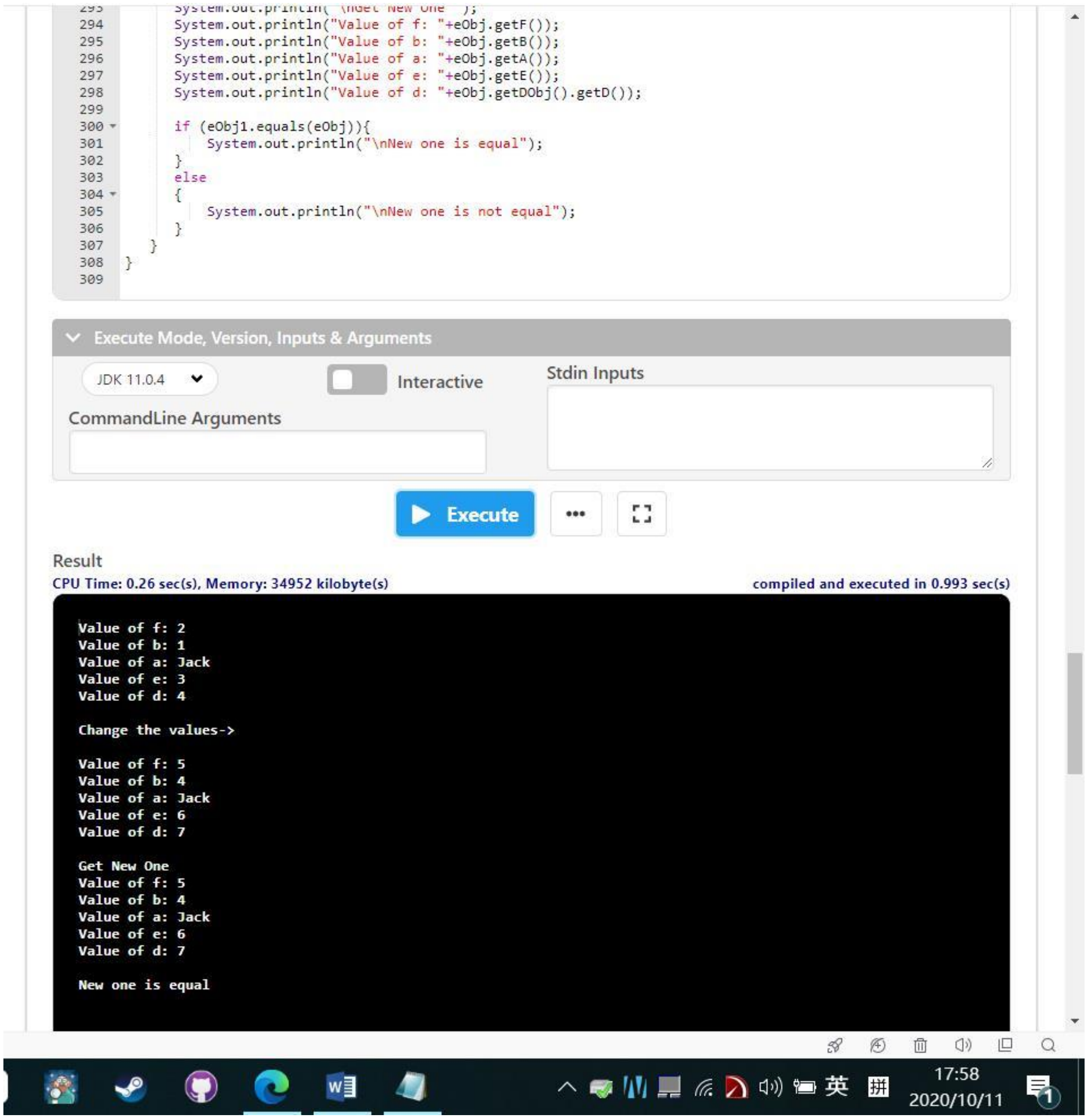
```
class F implements Cloneable{
    private int f=0;      // Helping functions
    private void trace(String s) {
        System.out.println(s);
    }


    // Manager functions
    public F(int f1) { f = f1; }

    //Access functions
    public int getF() { return f; }
    public void setF(int f1) { f = f1; }

    public boolean isLargeValue(){
        return f>100;
    }

    //Implement functions
    public void changeToZero(){
        f = 0;
    }

    public void changeNumber(int num){
        f = num;
    }

    public Object clone()
    {
        try
        { return super.clone();
        }
        catch (CloneNotSupportedException e)
        {
            // This shouldn't happen, since we are Cloneable
            return null;
        }
    }
```

```
      public boolean equals(Object obj) {
      F tstF;

      if (!(obj instanceof F)) return false;
      tstF = (F) obj;

      return (f == tstF.f);

        }
public String toString() {
            return ("");
      }
}

class B implements Cloneable{
        // Attributes
        private int b=0;

        // Manager functions
        public B(int b1) { b = b1; }



        // Helping functions
        private void trace(String s) {
              System.out.println(s);
        }

        //Access functions
        public int getB() { return b; }
        public void setB(int b1) { b = b1; }
        public boolean isLargeValue(){
            return b>100;
      }

      //Implement functions
      public void changeToZero(){
            b = 0;
      }

      public void changeNumber(int num){
            b = num;
      }
```

```
        public Object clone()
        {
            try
            { return super.clone();
            }
            catch (CloneNotSupportedException e)
            {
                // This shouldn't happen, since we are Cloneable
                return null;
            }
        }
        public boolean equals(Object obj) {
            B tstB;

            if (!(obj instanceof B)) return false;
            tstB = (B) obj;

            return (b == tstB.b);
        }
        public String toString() {
          return ("");
      }
}

class A implements Cloneable{
        // Attributes
        private String a;
        private F fObj = new F(0);
        private B bObj = new B(0);

        // Manager functions
        public A(String a1, int f1,    int b1) { a = a1; fObj.setF(f1); bObj.setB(b1); }
        // Helping functions
        private void trace(String s) {
            System.out.println(s);
        }

        //Access functions
        public B getBObj() { return bObj; }
        public void setBObj(int b1) { bObj.setB(b1); }
        public F getFObj() { return fObj; }
        public void setFObj(int f1) { fObj.setF(f1); }

        public String getA() { return a; }
```

```
            public void setA(String a1) { a = a1; }
            public boolean isBruceLee(){
                  return a == "Bruce Lee";
            }
          //Implement functions
      public void changeName(String new_name){
            a = new_name;
      }

            public Object clone()
        {
              try
              {
                A a = (A)super.clone();
                a.bObj = (B)bObj.clone();
                a.fObj = (F)fObj.clone();
                return a;
              }
              catch (CloneNotSupportedException e)
              {
                    // This shouldn't happen, since we are Cloneable
                    return null;
              }
        }
        public boolean equals(Object obj) {
              A tstA;

              if (!(obj instanceof A)) return false;
              tstA = (A) obj;

              return (a == tstA.a && bObj.equals(tstA.bObj) && fObj.equals(tstA.fObj));
        }
        public String toString() {
            return ("");
      }
}
class D implements Cloneable {
        // Attributes
        private int d=0;

      // Manager functions
      public D(int d1) { d = d1; }
      // Helping functions
      private void trace(String s) {
            System.out.println(s);
      }

      //Access functions

      public int getD() { return d; }
      public void setD(int d1) { d = d1; }

      public boolean isLargeValue(){
            return d>100;
      }

      //Implement functions
      public void changeToZero(){
            d = 0;
      }
      public void changeNumber(int num){
            d = num;
      }

     public Object clone()
        {
            try
            {
                return super.clone();
            }
            catch (CloneNotSupportedException e)
            {
                    // This shouldn't happen, since we are Cloneable
                    return null;
            }
        }
        public String toString() {
            return ("");
      }
}

class E extends A implements Cloneable
{
            // Attributes
            private int e;
            private D dObj = new D(0);

            // Manager functions
            public E(int f1,int e1, String a1, int b1, int d1) {
                    super(a1,b1,f1);
                    e = e1;
                    dObj.setD(d1);
            }
            // Helping functions
            private void trace(String s) {
                  System.out.println(s);
            }

            //Access functions

            public int getE() {return e;}
            public void setE(int e1){e=e1;}

            public D getDObj() { return dObj; }
            public void setDObj(int d1) { dObj.setD(d1); }

            public String getA() { return super.getA(); }
            public int getB() {return getBObj().getB(); }
            public int getF() {return getFObj().getF(); }

            public void setA(String a1) { super.setA(a1); }
            public void setB(int b1) { getBObj().setB(b1); }
            public void setF(int f1) { getFObj().setF(f1); }
            public boolean isLargeValue(){
                  return e>100;
            }

            //Implement functions
      public void changeToZero(){
            e = 0;
      }
      public void changeNumber(int num){
            e = num;
      }

     public boolean equals(Object obj) {
      E tstE;
      if (!(obj instanceof E)) return false;
      tstE = (E) obj;

      return (e == tstE.e);
        }
```

```
        public String toString() {
            return (super.toString() + "" );
        }
      public Object clone()
      {
            return super.clone();
      }

}

public class Demo1 {
      public static void main (String argv[])
      {
            E eObj = new E(1,3,"Jack",2,4);
            System.out.println("Value of f: "+eObj.getF());
            System.out.println("Value of b: "+eObj.getB());
            System.out.println("Value of a: "+eObj.getA());
            System.out.println("Value of e: "+eObj.getE());
            System.out.println("Value of d: "+eObj.getDObj().getD());

            eObj.getBObj().changeNumber(4);
            eObj.getFObj().changeNumber(5);
            eObj.changeNumber(6);
            eObj.getDObj().changeNumber(7);
            System.out.println("\nChange the values-> \n");
            System.out.println("Value of f: "+eObj.getF());
            System.out.println("Value of b: "+eObj.getB());
            System.out.println("Value of a: "+eObj.getA());
            System.out.println("Value of e: "+eObj.getE());
            System.out.println("Value of d: "+eObj.getDObj().getD());


            E eObj1=(E)eObj.clone();
            System.out.println("\nGet New One ");
            System.out.println("Value of f: "+eObj.getF());
            System.out.println("Value of b: "+eObj.getB());
            System.out.println("Value of a: "+eObj.getA());
            System.out.println("Value of e: "+eObj.getE());
            System.out.println("Value of d: "+eObj.getDObj().getD());

            if (eObj1.equals(eObj)){
                    System.out.println("\nNew one is equal");
            }
            else
            {
                System.out.println("\nNew one is not equal");
            }
        }
    }
```



```
        System.out.println("\nGet New One");
        System.out.println("Value of f: "+eObj.getF());
        System.out.println("Value of b: "+eObj.getB());
        System.out.println("Value of a: "+eObj.getA());
        System.out.println("Value of e: "+eObj.getE());
        System.out.println("Value of d: "+eObj.getDObj().getD());

        if (eObj1.equals(eObj)){
            System.out.println("\nNew one is equal");
        }
        else
        {
            System.out.println("\nNew one is not equal");
        }
    }
}
```

Result
CPU Time: 0.26 sec(s), Memory: 34952 kilobyte(s)   compiled and executed in 0.993 sec(s)

```
Value of f: 2
Value of b: 1
Value of a: Jack
Value of e: 3
Value of d: 4

Change the values->

Value of f: 5
Value of b: 4
Value of a: Jack
Value of e: 6
Value of d: 7

Get New One
Value of f: 5
Value of b: 4
Value of a: Jack
Value of e: 6
Value of d: 7

New one is equal
```