

Title: Generate keys and Key pairs.

Aims:

- Generate a key.
- Generate pair of Keys.

Tasks:

- Generate keys using KeyGenerator from Java.
- Generate a pair of keys using KeyPairGenerator.

Activities:

1. Generate keys using KeyGenerator from Java.

```
package key_Keypair;

import javax.crypto.Cipher;
import javax.crypto.KeyGenerator;
import java.security.Key;
import java.security.SecureRandom;

public class Key_Gen {
    public static void main(String args[]) throws Exception{

        KeyGenerator keyGen = KeyGenerator.getInstance("AES");

        SecureRandom secRandom = new SecureRandom();

        keyGen.init(128, secRandom);

        Key key = keyGen.generateKey();
        System.out.println(key);
        Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");
        cipher.init(Cipher.ENCRYPT_MODE, key);
        String msg = new String("Hi how are you");
        byte[] bytes = cipher.doFinal(msg.getBytes());
        System.out.println(bytes);
    }
}
```

2. Generate a pair of keys using KeyPairGenerator.

```
package key_Keypair;

import java.security.KeyPair;
import java.security.KeyPairGenerator;
import java.security.PrivateKey;
import java.security.PublicKey;

public class Key_pair {

    public static void main(String[] args) throws Exception {

        KeyPairGenerator keyPairGen = KeyPairGenerator.getInstance("DSA");

        keyPairGen.initialize(2048);

        KeyPair pair = keyPairGen.generateKeyPair();

        PrivateKey privKey = pair.getPrivate();

        PublicKey publicKey = pair.getPublic();
        System.out.println("Keys are generated");
    }
}
```