```
1
2   /**
3      A PROGRAM TO CHECK IF A NUMBER IS A SMITH NUMBER OR NOT.
4    */
5   //SUCHIT TE XII A
6   import java.util.*;
7   public class Smithnumber
8   {
9       String checkPrime(int receive)
10      {
11          int ctr=0;
12          for(int i=1;i<=receive;i++)
13          {
14              if(receive%i==0)
15              {
16                  ctr++;
17              }
18              else
19              {
20                  continue;
21              }
22          }
23          if(ctr==2)
24          {
25              String reply="PRIME NUMBER";
26              return reply;
27          }
28          else
29          {
30               String reply="NOT PRIME NUMBER";
31               return reply;
32          }
33      }
34      int primeFactors(int value)
35      {
36          int temp=0;
37          Smithnumber obj1 = new Smithnumber();
38          int ctr=0;;
39          System.out.println("THE PRIME FACTORS ARE");
40          int sumfactors=0;
41          for(int i=2;i<=value;i++)
42          {
43              String check1=obj1.checkPrime(i);
44              if(check1=="PRIME NUMBER")
45              {
46                  if(value%i==0)
47                  {
48                      String digitcheck=Integer.toString(i);
49                      if(digitcheck.length()>1)
50                      {
51                          sumfactors+=obj1.sumDigits(i);
52                      }
53                      else
54                      {
```

```
55                          sumfactors=sumfactors+i;
56                      }
57                      temp=value/i;
58                      System.out.println(i);
59                      String check2=obj1.checkPrime(temp);
60                      value=temp;
61                      if(check2=="PRIME NUMBER")
62                      {
63                          String digitcheck1=Integer.toString(temp);
64                          if(digitcheck1.length()>1)
65                           {
66                              sumfactors+=obj1.sumDigits(temp);
67                           }
68                          else
69                           {
70                              sumfactors=sumfactors+temp;
71                           }
72                          System.out.println(temp);
73                          break;
74                      }
75                      else if(temp%i==0)
76                      {
77                          i--;
78                          continue;
79                      }
80                      else
81                      {
82                          continue;
83                      }
84                  }
85              }
86              else if(check1=="NOT PRIME NUMBER")
87              {
88                  continue;
89              }
90          }
91          return sumfactors;
92      }
93      int sumDigits(int value)
94      {
95          int temp=value;
96          int sum=0;
97          while(temp!=0)
98          {
99              int n=temp%10;
100             sum=sum+n;
101             temp=temp/10;
102         }
103         return sum;
104     }
105     public static void main()
106     {
107         Scanner sc=new Scanner(System.in);
108         System.out.println("TO CHECK IF A NUMBER IS A SMITH NUMBER OR
```

```
108 NOT");
109         System.out.println("PLEASE ENTER A POSITIVE NATURAL NUMBER");
110         int num = sc.nextInt();
111         int number=num;
112         Smithnumber obj1=new Smithnumber();
113         int sum1=obj1.sumDigits(num);
114         int sum2=obj1.primeFactors(num);
115         System.out.println("SUM OF DIGITS :"+sum1);
116         System.out.println("SUM OF PRIME FACTORS :"+sum2);
117         if(sum1==sum2)
118         {
119             System.out.println(number+" IS A SMITH NUMBER");
120         }
121         else
122         {
123             System.out.println(number+" IS NOT A SMITH NUMBER");
124         }
125     }
126 }
127
```