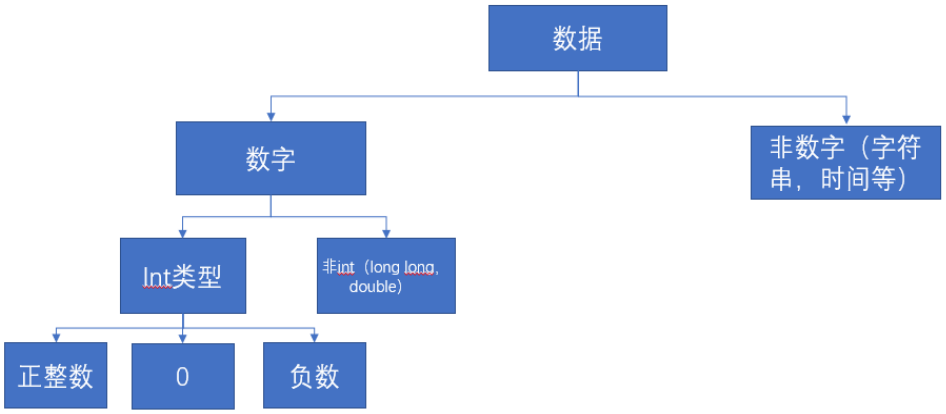
提出问题：读入一个正整数 n，并输出不大于它的所有正偶数之和
建立模型：问题分解为三部分：
1：读入一个正整数
这一部分调用了构件库来读入一个整数，然后判断是否是正整数

```
Please input an integer.
diehc
Invalid input, please try again.
Please input an integer.
3827.391
Invalid input, please try again.
Please input an integer.
19383727821
Invalid input, please try again.
Please input an integer.
2147483648
Invalid input, please try again.
Please input an integer.
0123
Invalid input, please try again.
Please input an integer.
1
```

```
-1
Invalid input, please try again.
Please input an integer.
-2033927
Invalid input, please try again.
Please input an integer.
-292383837737
Invalid input, please try again.
Invalid input, please try again.
Please input an integer.
2147483647
```

只有当读入的数是正整数才能继续执行，否则就会报错并让用户重新输入
构件库基本思路：
先构件等价类：



然后以读入字符串的方式读入数据，然后判断数据类型（是否是 int），如果是 int 就转换成 int 并返回，否则输出错误信息，并让用户重新输入，直到输入正确为止。

2：计算

用了两种方法：

第一种是用 for 循环遍历 1-n 间的所有正整数，并将偶数加上

第二种是用等差数列求和公式 S=（a1+an）*n/2

第一种方法速度较慢（测试几十亿的大数据的时候用时明显长），第二种方法快很多。

但是两种方法都应该注意将结果 sum 的数据类型设置为 long long，否则会越界而得到不正确的结果

3：验证

验证的方法是调用构件库的生成范围内随机整数随机生成 100 组数据（比较小，否则跑不下来），分别用两种方法求出结果并比较，结果是所有数据的结果都一样，可以初步说明结果正确

```
Please input an integer.
1
Using method 1,the answer is 0.
Using method 2,the answer is 0.
The answers of the two methods are the same
After testing 100 datas,
it turns out that the answers of the two methods are always the same
```

```
Please input an integer.
1402
Using method 1,the answer is 492102.
Using method 2,the answer is 492102.
The answers of the two methods are the same
After testing 100 datas,
it turns out that the answers of the two methods are always the same
```

```
Please input an integer.
19990208
Using method 1,the answer is 99902113965920.
Using method 2,the answer is 99902113965920.
The answers of the two methods are the same
After testing 100 datas,
it turns out that the answers of the two methods are always the same
```

```
Please input an integer.
2017013569
Using method 1,the answer is 10170859343825294 40.
Using method 2,the answer is 10170859343825294 40.
The answers of the two methods are the same
After testing 100 datas,
it turns out that the answers of the two methods are always the same
```

```
Please input an integer.
2147483647
Using method 1,the answer is 11529215035331051 52.
Using method 2,the answer is 11529215035331051 52.
The answers of the two methods are the same
After testing 100 datas,
it turns out that the answers of the two methods are always the same
```

共测试五组数据（非正整数读入已经测试过了）：
下边界 1，上边界 2147483647，小数据 1402（结果不会超过 int）,中等数据 19990208（结果会超过 int）,大数据 2017013569（接近边界），两种方法结果均相同且合理。
评价 :完成了作业要求, 代码的读入正整数以及生成范围内随机数可以加入构件库大量复用。