

Exceptions – handling and writing

Programming Projects:

1) ArrayCounter class

- Start Eclipse and create a new Java project called 'exc_lab'
- Create class called **ArrayProcessor**
- Add a method with the following signature –

`int getArrayLength(Object [] a)`
- Now implement this method, so that it returns the size of the array. However rather than simply using **a.length** use a loop which iterates over each element until an exception is thrown.
- Deal with that exception within the method, and use this as the loop terminator.
- Start with this code –

```
int count = 0;

while (true) {

    Object t = a[count];
    count++;
}
```

- Write a Driver class which creates an instance of **ArrayProcessor** then calls the **getArrayLength()** in order to test. e.g.

```
ArrayProcessor ap = new ArrayProcessor();

int len = ap.getArrayLength(new String[] {"one", "two", "three"});

System.out.println("Array length is " +len);
```

- Why would writing such code not be an appropriate use of the exception handling mechanism?

2) Menu and InvalidOption exceptions

- Create class called **Menu**, but do not add any methods.
- Now create a class called **InvalidOptionException** which 'extends' the **Exception** class.
- Within the **Menu** class add a method which allows a selected menu option to be displayed, the signature should be –

`void displayMenuOption(int opt) throws InvalidOptionException;`
- Implement the method so it accepts options 1 to 3 only, and outputs a message such as "Menu option 1 selected".
- If the passed opt parameter is outside the accepted range then update the method so that it **throws** an **InvalidOptionException**
- Extend the **Driver** class from question 1, so that it creates an instance of the **Menu** class and does several calls to the **displayMenuOption()** method, testing both valid and invalid **opt** values.
- Ensure the Driver class correctly catches the exception which is thrown from the **displayMenuOption()** method, and outputs a message reporting the invalid option.

Think you're finished? Check you have commented your code and added Javadoc to the methods and classes. Also try to improve the **InvalidOptionException** class so that it allows a message to be included when it is thrown. Then use this message within the **Driver** class to report the problem.