

Extract

```
def find_bad_articles(archive, predicate):  
    for page in archive.get_pages():  
        for key in archive.keys_from(page):  
            lines = archive.get_file(key)  
            if predicate(lines):  
                yield key
```

Encapsulate

```
class S3Archive(object):
    def __init__(self, bucket_name, prefix, region_name):
        """Ctor"""
        self.client = boto3.client('s3', region_name=region_name)
        self.bucket_name = bucket_name
        self.prefix = prefix

+---- 7 lines: def get_file(self, key): -----
+---- 4 lines: def get_pages(self): -----
+---- 6 lines: def keys_from(self, page): -----
```