Using well asString and printString

A Pharo code idiom

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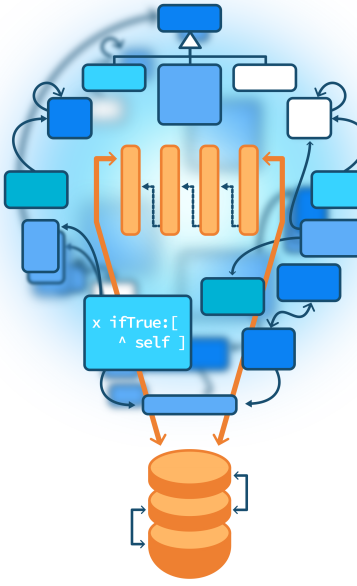

Goal

- Think about **intermediary object creation**
- Avoid creating spurious objects
- Use asString and printString inside printOn:

printString: setting the stage

- Can get a textual representation of any object

```
> Apple new printString
'an Apple'

> Date today printString
'2 April 2023'
```

printString: implementation

```
Object >> printString
  ^ self printStringLimitedTo: 50000

Object >> printStringLimitedTo: limit
  | limitedString |
  limitedString := String
                        streamContents: [ :s | self printOn: s ]
                        limitedTo: limit.
  limitedString size < limit ifTrue: [ ^ limitedString ].
  ^ limitedString , '...etc...'
```

- streamContents: [:s | self printOn: s] creates a stream and gather object textual representation
- Each object can place text inside the stream

Some suboptimal use: The case of displayStringOn:

```
MessageTally >> displayStringOn: aStream
  self displayIdentifierOn: aStream.
  aStream
    nextPutAll: ' (';
    nextPutAll: self tally printString;
    nextPutAll: ')'
```

- When we get a stream, better use it directly
- self tally printString
  - creates a **new** stream
  - and gets its contents to put in the first stream

Better

```
MessageTally >> displayStringOn: aStream
  self displayIdentifierOn: aStream.
  aStream
    nextPutAll: ' (';
    print: self tally;
    nextPutAll: ')'
```

```
Stream >> print: anObject
  "Have anObject print itself on the receiver."
  anObject printOn: self
```

- No creation of intermediary streams

Another case of misuse

```
printProtocol: protocol sourceCode: sourceCode

  ^ String streamContents: [ :stream |
    stream
      nextPutAll: 'protocol: ';
      nextPutAll: protocol printString;
      cr; cr;
      nextPutAll: sourceCode ]
```

protocol printString

- Creates a new stream
- Get its contents to put in the first stream

Better use print:

```
printProtocol: protocol sourceCode: sourceCode

  ^ String streamContents: [ :stream |
    stream
      nextPutAll: 'protocol: ';
      print: protocol;
      cr; cr;
      nextPutAll: sourceCode ]
```

About asString

asString has the similar issues than printString

```
Object >> asString
  "Answer a string that represents the receiver."

  ^ self printString
```

- asString should be used when we convert an object to its string representation
- Check before calling it inside a streamContents

Conclusion

- Check protocols (printString, printOn:, asString)
- Read code around
- Streams are powerful containers
  - can be passed around
  - no need to create intermediary streams for basic sub processes

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