

WIA 1002 Data Structure

Lab Test 2

Time: 90 min

Question 1 (Queue):

Create a program to read the products from a text file (**labtest2.txt**) and then categorize the product into different queues based on the product code. The number of queues varies and is determined by the data from the text file.

Example contents of text file (labtest2.txt):

P03 Durian P02 iPhone P06 Buku P02 Samsung P04 Baju P03 Tembikai
P03 Mangga P06 Pembaris P02 Nokia P06 Kertas P04 Kasut P03 Rambutan

Example output:

```
Product Code in Queue : P03 --> P02 --> P06 --> P04 -->
List of product by categories
Product : P03
Durian --> Tembikai --> Mangga --> Rambutan -->
Product : P02
iPhone --> Samsung --> Nokia -->
Product : P06
Buku --> Pembaris --> Kertas -->
Product : P04
Baju --> Kasut -->
```

Question 2 (Stack):

An XML document contains XML elements. An XML element begins with <elementName> and ends with </elementName>. An element can contain text and other elements. The element name is case sensitive. (Note: an XML document can only have one root element.) Write a program to validate whether an XML document is valid; assume that the element name is valid if it has the matching the begin-end element. Create the XML document using notepad and save as **test.xml**.

Example output:

Contents of XML file

<note>

<test>Sample</test>

<note>Data</note>

</note>

Duplicate root element <note>

Contents of XML file

<note>

<ID>1002</ID>

<Name>Data Structure</name>

</note>

Begin Element : <Name> Invalid ending element : </name>

Contents of XML file

<note>

<ID>1002</ID>

<Name>Data Structure</Name>

</Lecturer>Ang<Lecturer>

</note>

Begin Element : <note> Invalid ending element : </Lecturer>