Fall 2017 OOP345 Project

Milestone 3.

Milestone 3 consists of several steps:

1. Verify each of the item, and order data files from the project website are read successfully by your CSV file reader..
2. Copy Task.cpp to Item.cpp.
3. Hack Item.cpp to process item data: read it, parse it, print it, graph it.
4. Copy Item.cpp to Order.cpp
5. Hack Order.cpp to process order data: read it, parse it, print it, graph it.

Item Parser

An item has either 4 or 5 fields: 'item name', 'installer task', 'remover task', 'sequential code', optional 'description'

Pseudo code for a simple Item parser:

```
      declare 'item name', 'installer task', 'remover task', 'sequential code',
'description'
      switch(# of CSV fields per line) {
      case 5:
        'description' = field 5 // description can be anything
        // fall through to 4 field case
      case 4:
        if(field 4 is a valid code) 'sequential code' = field 4
        else syntax error

        if(field 3 is a valid task name) 'remover task' = field 3
        else syntax error

        if(field 2 is a valid task name) 'installer task' = field 2
        else syntax error

        if(field 1 is a valid item name) 'item name' = field 1
        else syntax error

        break; // all done parsing this data row

      default:
        syntax error - not 4, or 5 fields
      }

      Store example, 'item name', 'installer task', 'remover task', 'sequential
code', 'description'
      into the class 'Item' data elements
```

Order Parser

A order record must have at least three fields, a customer name and a product name followed by a variable number of items.

Pseudo code for a simple Order parser:

```
declare 'customer name', 'product name',  and an 'item list'

if(# of CSV fields for this line is not 3 or greater)
  syntax error - need at least 3 fields

if(field 1 is a valid customer name) 'customer name' = field 1
else syntax error

if(field 2 is a valid product name) 'product name' = field 2
else syntax error

for each additional field, if the field is valid item name, add the field to the item list.
If it is not a valid task name, it is a syntax error.

Store example, 'customer name', 'product name' and the item list into the class CustomerOrder data elements.
```

Item Data and Order Data Graphs

It was meaning to plot graphs for the task data. The relationships between data lines representing tasks was instantly comprehensible.

It is also useful to plot graphs for the item and order data files.

Plot graphs for the item and order data.

Simplify Testing

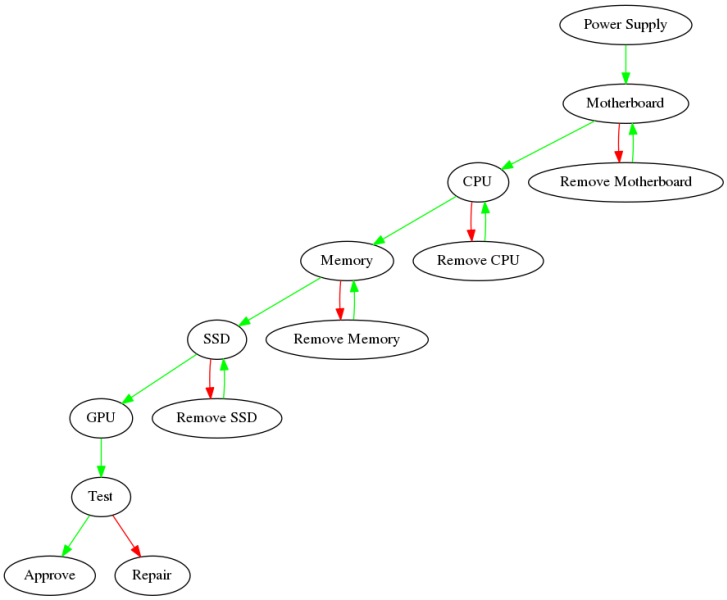
You are welcome to generate meaningful data files with referential integrity for testing.

For example:

SimpleTask.data:

```
Install Power Supply|4|Install Motherboard|Remove Power Supply
Remove Power Supply|2|Install Power Supply
Install Motherboard|3|Install CPU|Remove Motherboard
Remove Motherboard|1|Install Motherboard
Install CPU|5|Install Memory|Remove CPU
Remove CPU|1|Install CPU
Install Memory|4|SSD|Remove Memory
Remove Memory|1|Install Memory
Install SSD|4|Install GPU|Remove SSD
Remove SSD|1|Install SSD
```

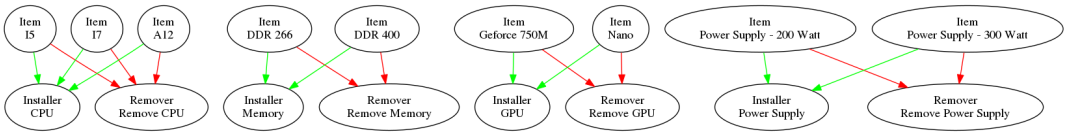
```
        Install GPU|3|Test
        Remove GPU|1|Install GPU
        Test|4|Approve|Repair
        Approve
        Repair

     SimpleItem.dat:

      I5  | Install CPU | Remove CPU | 300 | Intel I5 Central Processing Unit
      I7  | Install CPU | Remove CPU | 400 | Intel I7 Central Processing Unit
      A12 | Install CPU | Remove CPU | 500 | AMD A12 Central Processing Unit
      DDR 266 | Install Memory | Remove Memory | 125 | Samsung DDR 266 Memory
Stick
      DDR 400 | Install Memory | Remove Memory | 940 | Samsung DDR 400 Memory
Stick
      Geforce 750M | Install GPU | Remove GPU | 395 | Nvidia Geforce 750M GPU
      Nano | Install GPU | Remove GPU | 30 | AMD Nano GPU
      Power Supply - 200 Watt | Install Power Supply | Remove Power Supply | 1100
      Power Supply - 300 Watt | Install Power Supply | Remove Power Supply | 9100

    SimpleCustomerOrder.dat:

      Biance      | Dell 123 | DDR 266 | I7 | DDR 266 | Nano | Power Supply - 300
Watt
      Salt-N-Pepa | HP 345   | A12 | DDR 400 | Geforce 750M | DDR 400 | Power
Supply - 300 Watt
      Brianna     | Acer 567 | I5 | Power Supply - 200 Watt | DDR 266 | Nano


      SimpleTask.dat.gv — generated by task
            digraph taskGraph {
                  "Power Supply"->"Motherboard"[color=green];
                  "Motherboard"->"CPU"[color=green];
                  "Motherboard"->"Remove Motherboard"[color=red];
                  "Remove Motherboard"->"Motherboard"[color=green];
                  "CPU"->"Memory"[color=green];
                  "CPU"->"Remove CPU"[color=red];
                  "Remove CPU"->"CPU"[color=green];
                  "Memory"->"SSD"[color=green];
                  "Memory"->"Remove Memory"[color=red];
                  "Remove Memory"->"Memory"[color=green];
                  "SSD"->"GPU"[color=green];
                  "SSD"->"Remove SSD"[color=red];
                  "Remove SSD"->"SSD"[color=green];
                  "GPU"->"Test"[color=green];
                  "Test"->"Approve"[color=green];
                  "Test"->"Repair"[color=red];
                  "Approve";
                  "Repair";
            }

      SimpleTask.dat.gv.png
```




```
SimpleItem.dat.gv – generated by item
      digraph itemGraph {
            "Item
            I5"->"Installer
            CPU"[color=green];
            "Item
            I5"->"Remover
            Remove CPU"[color=red];
            "Item
            I7"->"Installer
            CPU"[color=green];
            "Item
            I7"->"Remover
            Remove CPU"[color=red];
            "Item
            A12"->"Installer
            CPU"[color=green];
            "Item
            A12"->"Remover
            Remove CPU"[color=red];
            "Item
            DDR 266"->"Installer
            Memory"[color=green];
            "Item
            DDR 266"->"Remover
            Remove Memory"[color=red];
            "Item
            DDR 400"->"Installer
            Memory"[color=green];
            "Item
            DDR 400"->"Remover
            Remove Memory"[color=red];
            "Item
            Geforce 750M"->"Installer
            GPU"[color=green];
```

```
            "Item
            Geforce 750M"->"Remover
            Remove GPU"[color=red];
            "Item
            Nano"->"Installer
            GPU"[color=green];
            "Item
            Nano"->"Remover
            Remove GPU"[color=red];
            "Item
            Power Supply - 200 Watt"->"Installer
            Power Supply"[color=green];
            "Item
            Power Supply - 200 Watt"->"Remover
            Remove Power Supply"[color=red];
            "Item
            Power Supply - 300 Watt"->"Installer
            Power Supply"[color=green];
            "Item
            Power Supply - 300 Watt"->"Remover
            Remove Power Supply"[color=red];
      }
```

SimpleItem.dat.gv.png



SimpleOrder.dat.gv – generated by order

```
      digraph orderGraph {
            "Biance
            Dell 123"->"Item
            DDR 266"[color=blue];
            "Biance
            Dell 123"->"Item
            I7"[color=blue];
            "Biance
            Dell 123"->"Item
            DDR 266"[color=blue];
            "Biance
            Dell 123"->"Item
            Nano"[color=blue];
            "Biance
            Dell 123"->"Item
            Power Supply - 300 Watt"[color=blue];
            "Salt-N-Pepa
            HP 345"->"Item
            A12"[color=blue];
            "Salt-N-Pepa
            HP 345"->"Item
            DDR 400"[color=blue];
```

```
            "Salt-N-Pepa
            HP 345"->"Item
            Geforce 750M"[color=blue];
            "Salt-N-Pepa
            HP 345"->"Item
            DDR 400"[color=blue];
            "Salt-N-Pepa
            HP 345"->"Item
            Power Supply - 300 Watt"[color=blue];
            "YoYo Ma
            Acer 567"->"Item
            I5"[color=blue];
            "YoYo Ma
            Acer 567"->"Item
            Power Supply - 200 Watt"[color=blue];
            "YoYo Ma
            Acer 567"->"Item
            DDR 266"[color=blue];
            "YoYo Ma
            Acer 567"->"Item
            Nano"[color=blue];
      }
```

SimpleOrder.dat.gv.png