Functional Programming (CS4011)

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Lab 4 A1
Write code to generate the following graph:

\[
\begin{array}{c}
(a) \rightarrow (b) \\
(b) \rightarrow (c) \\
(c) \rightarrow (a)
\end{array}
\]

g1 = let a = 'a':b
     b = 'b':c
     c = 'c':a
     in a

Lab 4 A2
Write code to generate the following graph:

\[
\begin{array}{c}
(a) \rightarrow (b) \\
(b) \rightarrow (d) \\
(d) \rightarrow (c)
\end{array}
\]

g2 = let a = c : b
     b = d : []
     c = 1 : d
     d = 2 : c
     in a

Lab 4 A3
Re-implement the Queue as a *doubly-linked* list:

```
type C_Queue t = ???
c_mtq :: C_Queue t
c_mtq = ???
c_enqueue :: t -> C_Queue t -> C_Queue t
c_enqueue x q = ???
c_dequeue :: C_Queue t -> (t,C_Queue t)
c_dequeue q = ???
```

You will need to draw pictures to work this out. Include those pictures with the printout that you submit. Good luck!