Program 2

CS 231
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Include an implementation of the `HEAPSORT` operation in the abstract data type constructed in program 1 which reads, writes, and sorts permuted messages of type `MESSAGE`. The "sift" operation within `HEAPSORT` should be implemented as a separate procedure. Within the `HEAPSORT` procedure, print out the entire heap (keys only) at the outset and immediately after each "sift" operation is completed.

Compile and link the following program which uses the message abstract data type.

`prog2.pas`

```
[inherit ('msg_adt')]

program PROGRAM2;

var M: MESSAGE;

begin
   READ_MESSAGE (M);
   HEAPSORT (M);
   WRITE_MESSAGE (M)
end.
```

In my directory `[cs.cvbdr002]` there are files `msg1.dat`, `msg2.dat`, `msg3.dat`, and `msg4.dat` to be used as test data. Hand in a compiler listing of your program, its output when run on the file `msg4.dat`, and a drawing of the sequence of complete binary trees represented by the sequence of heaps in that output.