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\* MICHAEL BEAVER \*

\* CS 310, SPRING 2013 \*

\* PROGRAM 1 \*

\* DUE: FEBRUARY 20, 2013 \*

\* \*

\* DESCRIPTION: \*

\* THIS PROGRAM EXPECTS AS INPUT \*

\* AN UNKNOWN NUMBER OF DATA \*

\* LINES. EACH DATA LINE CONTAINS \*

\* THREE INTEGERS (SEPARATED \*

\* BY ONE OR MORE BLANKS). THE \*

\* PROGRAM THEN DETERMINES THE \*

\* LARGEST VALUE ON EACH LINE AND \*

\* PRINTS THE VALUE. THE PROGRAM \*

\* ALSO SUMS UP THE LARGEST \*

\* VALUES. THE SUM IS PRINTED. \*

\* \*

\* REGISTER KEY: \*

\* REG2 -> 1ST VALUE ON LINE \*

\* REG3 -> 2ND VALUE ON LINE \*

\* REG4 -> 3RD VALUE ON LINE \*

\* REG5 -> LARGEST VALUE ON LINE \*

\* REG6 -> SUM OF LARGEST VALUES \*

\* \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SPACE

SPACE

BEAVER1 START

SPACE

SPACE

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* \*

\* BEGINNING HOUSEKEEPING \*

\* \*

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STM 14,12,12(13)

BALR 12,0

USING SAVING,12

SAVING ST 13,SAVEAREA+4

LA 13,SAVEAREA

SPACE

SPACE

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\* \*

\* MAIN PROGRAM BODY \*

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SR 6,6 ZERO-OUT REG6

SPACE

SPACE

\*

\* READ UNTIL EOF

\*

TOPREAD XREAD CARD,80

BC B’0100’,ENDREAD EOF => END LOOP

SPACE

\*

\* RETRIEVE THE THREE VALUES

\*

\* XPRNT =C’0THE DATA LINE IS: ‘,19

\* XPRNT CARD-1,79 OUTPUT DATA LINE

XDECI 2,CARD 1ST NUMBER

XDECI 3,0(1) 2ND NUMBER

XDECI 4,0(1) 3RD NUMBER

SPACE

\*

\* COMPARE NUMBERS

\*

IF CR 2,3 COMPARE 1ST & 2ND NUMBERS

BC B’1010’,THEN 1ST >= 2ND

BC B’0100’,ELSE 2ND > 1ST

THEN CR 2,4 COMPARE 1ST & 3RD NUMBERS

BC B’1010’,SAVE1 1ST >= 3RD

ELSE CR 3,4 COMPARE 2ND & 3RD NUMBERS

BC B’1010’,SAVE2 2ND >= 3RD

BC B’0100’,SAVE3 3RD > 2ND

SPACE

\*

\* 1ST NUMBER IS LARGEST

\*

SAVE1 LR 5,2 COPY VALUE TO REG5

BC B’1111’,PRINT GOTO PRINT

SPACE

\*

\* 2ND NUMBER IS LARGEST

\*

SAVE2 LR 5,3 COPY VALUE TO REG5

BC B’1111’,PRINT GOTO PRINT

SPACE

\*

\* 3RD NUMBER IS LARGEST

\*

SAVE3 LR 5,4 COPY VALUE TO REG5

SPACE

\*

\* OUTPUT LARGEST NUMBER

\*

PRINT XDECO 5,OUTLINE

XPRNT LRGHEAD,23

XPRNT CARRIAGE,13

SPACE

AR 6,5 ADD LARGEST VALUE TO SUM

BC B’1111’,TOPREAD LOOP BACK TO TOP

SPACE

\*

\* OUTPUT SUM OF LARGEST VALUES

\*

ENDREAD XDECO 6,OUTLINE

XPRNT SUMHEAD,23

XPRNT CARRIAGE,13

SPACE

SPACE

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\* \*

\* ENDING HOUSEKEEPING \*

\* \*

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L 13,SAVEAREA+4

LM 14,12,12(13)

BR 14

SPACE

SPACE

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\* \*

\* DECLARE STORAGE AND CONSTANTS \*

\* \*

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SAVEAREA DS 18F

CARD DS CL80

CARRIAGE DC C’+’

OUTLINE DS CL12

LRGHEAD DC C’ THE LARGEST VALUE IS: ‘

SUMHEAD DC C’0 THE SUM IS: ‘

SPACE

SPACE

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\* \*

\* END, DATA ENTRY, AND LITERAL POOL \*

\* \*

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END BEAVER1

$ENTRY