**Andrew Scheel**

**Z1790270**

**CSCI-360**

**Fall 2018**

**CSCI 360-1 Assignment 4 – ABENDs and Dump Reading Fall 2018**

**30 points**

**This programming assignment does not require any further coding or documentation than that provided. The program will ABEND and your task is to learn how to investigate what happened so that you can debug your own Assembler programs in the future. To begin, run the following program on the Marist mainframe using the ASSIST JCL used previously:**

DUMP1 CSECT

USING DUMP1,15 ESTABLISH R15 AS BASE REG

\*

L 3,FIRST LOAD REG 3 WITH VALUE AT LABEL FIRST

L 4,SECOND LOAD REG 4 WITH VALUE AT LABEL SECOND

AR 3,4 ADD THE TWO VALUES

LA 5,THIRD REG 5 -> LABEL THIRD

L 6,TWO LOAD REG 6 WITH VALUE AT LABEL TWO

ST 3,0(6,5) STORE RESULT OF ADDITION ABOVE AT 0(6,5)

XDUMP THIRD,4 DUMP THE 4 BYTES AT LABEL THIRD

SR 6,6 0 OUT REG 6

\*

BCR B'1111',14 RETURN TO CALLER

\*

LTORG

\*

NOTE DC CL2'OK' PLACE KEEPER

TWO DC F'2' CONSTANT = 2

FIRST DC F'211' CONSTANT = 211

SECOND DC F'94' CONSTANT = 94

THIRD DS XL4 SUM OF THE ADDITION

FOURTH DS F STORAGE FOR ANOTHER NUMBER

\*

END DUMP1 PROGRAM ENDS HERE

**Use the resulting ABEND dump output to answer the following questions:**

1. (2 points) Did this error occur (a) while the program was being assembled or (b) when it was being run?

\_\_\_\_\_\_(b) when it was being run \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What is the address of the next instruction which would have been executed?

\_\_\_\_\_\_\_000016(Hex) or 22(decimal)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What is the value of the condition code at the time of the ABEND?

\_\_\_\_\_\_\_10\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What is the length of the instruction that caused the ABEND (a number of bytes)?

\_\_\_\_\_\_\_4\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What is the address of the instruction that caused the abend?

\_\_\_\_\_\_\_000012(Hex) or 18(decimal)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What type of error occurred (number and name)?

\_\_\_\_\_\_\_S0C 4 and Protection Exception\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What actually causes this error?

\_\_\_\_\_\_\_Accessing data/storage that you do not have access to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (3 points) Correct the error by rewriting the section of code that caused it. (The sum should be stored in THIRD.) (There are several correct ways to do this.)

\_\_\_\_\_\_\_LA 3,THIRD\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) At the time of the ABEND, what is the value of register 3 in decimal?

\_\_\_\_\_\_\_305\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What does the value in register 3 represent at the time of the ABEND?

\_\_\_\_\_\_\_It got through the addition of registers 3 and 4 before ABENDing\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (3 points) Why is the address (LOC column) of the storage area with the label TWO on it at X'000024' when the DC statement whose address is X'000020' only takes up 2 bytes?

\_\_\_\_\_\_\_Because storage needs to be on a full word boundary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 points) What are the contents of the two bytes of user storage starting at address X'000022'? What do they represent?

\_\_\_\_\_\_\_They are slack bytes\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2 point) Why do we not have XDUMP output?

\_\_\_\_\_\_\_Because XDUMP doesn’t output anything it just makes assist dump out contents\_\_\_\_\_\_\_\_\_\_

1. (2 points) If we correct the error, what should be the value of the condition code at the end of the program (when we reach the BCR line)?

\_\_\_\_\_\_\_0\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_