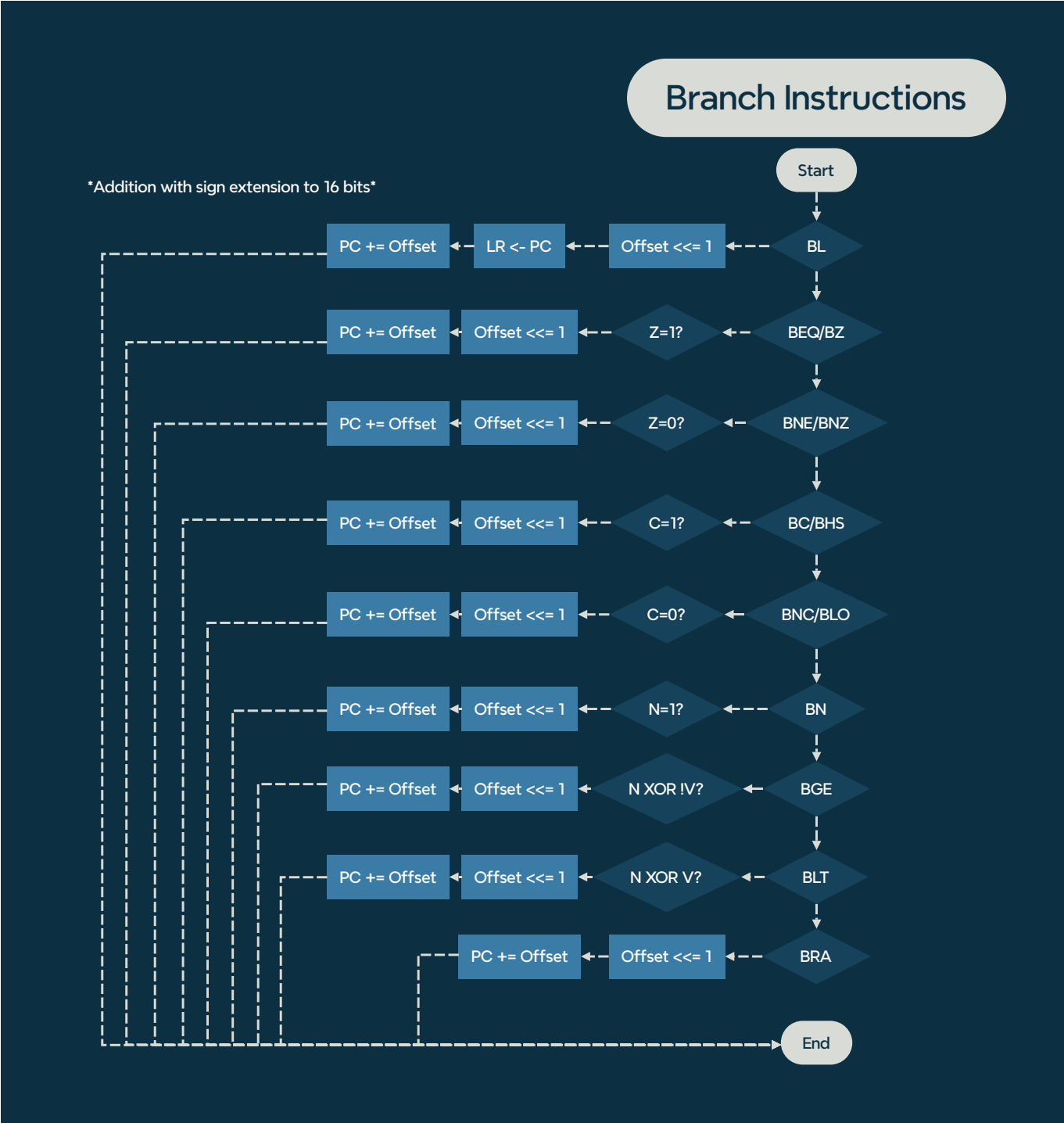Zachary Fraser

Assignment 2 - XM23P Instruction Pipeline

This assignment aims to implement the instruction pipeline for an XM23P emulator.

Design

The design contains logic flowcharts detailing the execution of each branch instruction. A Data dictionary describing the instructions, PSW, and register file is also included.

Data Dictionary

```
INSTRUCTION      =    CODE + 1{PARAMETER}4
CODE             =    [0-20] *Contiguous encoding of instructions*
PARAMETER        =    [RC|WB|SOURCE|DESTINATION|BYTE]

RC               =    BIT
WB               =    BIT
SOURCE           =    3{BIT}3
DESTINATION      =    3{BIT}3

IMEM             =    32*2^10{WORD}32*2^10
IMAR             =    ADDRESS
ICTRL            =    [READ|WRITE]
IMBR             =    WORD
IR               =    WORD

ADDRESS          =    WORD
READ             =    0x0000
WRITE            =    0x0001
WORD             =    2{BYTE}2
BYTE             =    8{BIT}8
BIT              =    [0|1]
```