Test Case #1: Swap the two numbers after doubling

//Register File initialization. $Register Name$Contents

$R2$600

$R3$800

// Memory initialization. $Memory Location$ Value

$600$55

$800$44

// Assembly Code

```
LD R4 R0[R2]
LD R5 R0[R3]
ADD R6 R4 R4
ADD R7 R5 R5
SD R0[R2] R7
SD R0[R3] R6
HLT
```

Test Case #2: Sum of first 7 natural numbers

//Register File initialization. $Register Name$Contents

$R4$600

// Memory initialization. $Memory Location$ Value

$600$0

//Assembly Code

```
SUB R1 R1R1
SUB R2 R2 R2
SUB R3 R3 R3
ADD R3 R3 #7

L1: BEQZ (R3) L2
      ADD R1 R1 #1
      ADD R2 R2 R1
      SUB R3 R3 #1
      JMP L1

L2: SD R0[R4] R2
      HLT
```

Test Case #3: Multiplication of two numbers

//Register File initialization. $Register Name$Contents

$R1$600

$R2$602

// Memory initialization. $Memory Location$ Value

$600$150

$800$200

// Assembly Code

```
LD R3 R0[R1]
LD R4 R0[R2]
MUL R5 R3 R4
SD R0[R1] R5
HLT
```

Test Case #4: Fibonacci Series

//Register File initialization. $Register Name$Contents

$R4$600

// Memory initialization. $Memory Location$ Value

$600$0

$602$1

// Assembly Code

```
SUB R1 R1 R1
SUB R2 R2 R2
ADD R0 R0 #4
ADD R2 R2 #1
ADD R5 R5 #10
L1: BEQZ (R5) L2
    ADD R3 R2 R1
    SD R0[R4] R3
    ADD R1 R2 #0
    ADD R2 R3 #0
    ADD R0 R0 #2
    SUB R5 R5 #1
    JMP L1
L2: HLT
```

Test Case #5: ADDING TWO ARRAYS

//Register File initialization. $Register Name$Contents

$R1$600
$R2$800
$R3$900
$R4$500

// Memory initialization. $Memory Location$ Value

$500$5 //Count
$600$2 //First Array
602-5
604-120
$606$10
$608$17
800-5 //Second Array
$802$5
$804$150
$806$6
808-11

// Assembly Code

```
LD R0[R4] R5
L1: BEQZ (R5) L2
    LD R6 R0[R1]
    LD R7 R0[R2]
    ADD R8 R6 R7
    SD R0[R3] R8
    ADD R0 R0 #2
    SUB R5 R5 #1
    JMP L1
L2: HLT
```