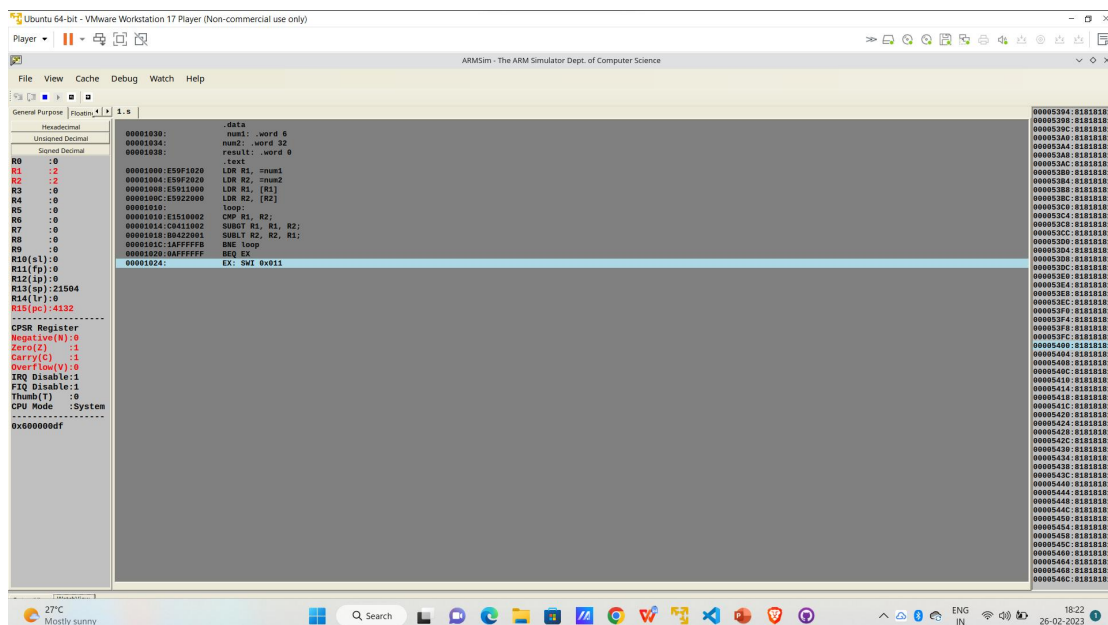LAB 2

NAME = RACHAPPA
SRN = PES1UG19CS359
ROLLNO ==1

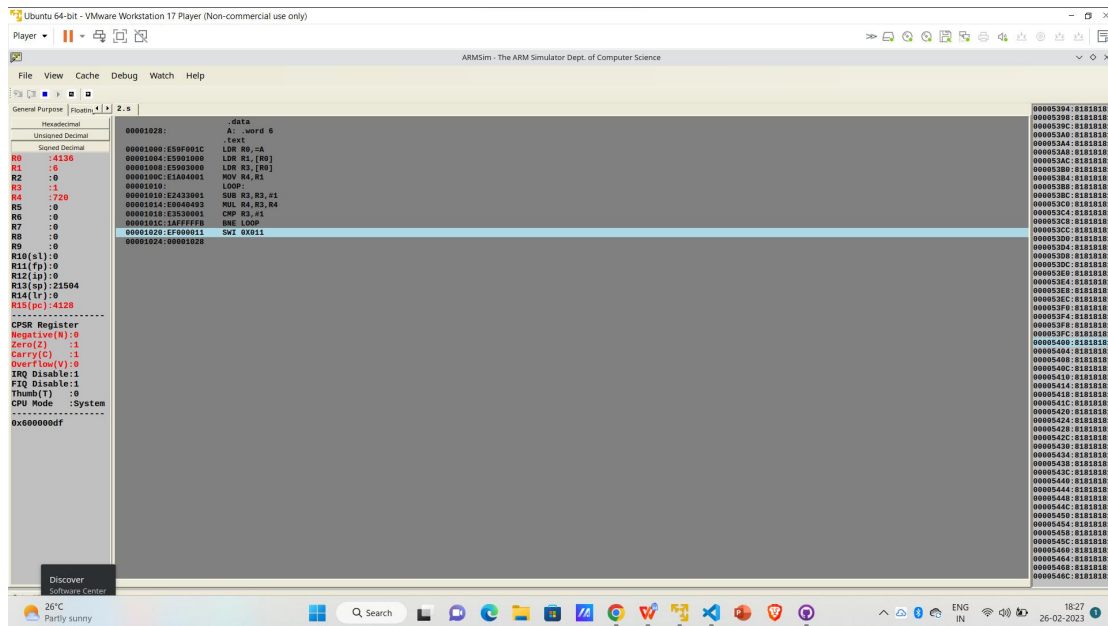# 1.Implementation of ARM7TDMI code   for GCD

```
.data
 num1: .word 6
 num2: .word 32
 result: .word 0
 .text
 LDR R1, =num1
 LDR R2, =num2
 LDR R1, [R1]
 LDR R2, [R2]
 loop:
 CMP R1, R2;
 SUBGT R1, R1, R2;
 SUBLT R2, R2, R1;
 BNE loop
 BEQ EX
 EX: SWI 0x011
```

2..Implementation of ARM7TDMI code for factorial.

```
.data
A: .word 6
.text
LDR R0,=A
LDR R1,[R0]
LDR R3,[R0]
MOV R4,R1
LOOP:
SUB R3,R3,#1
MUL R4,R3,R4
CMP R3,#1
BNE LOOP
SWI 0X011
```
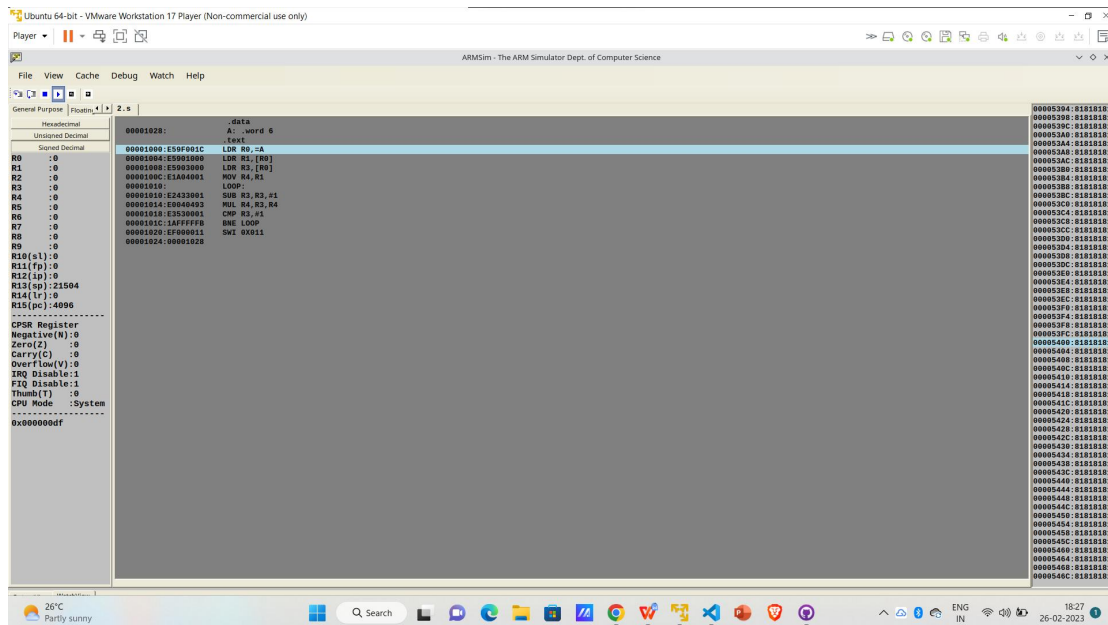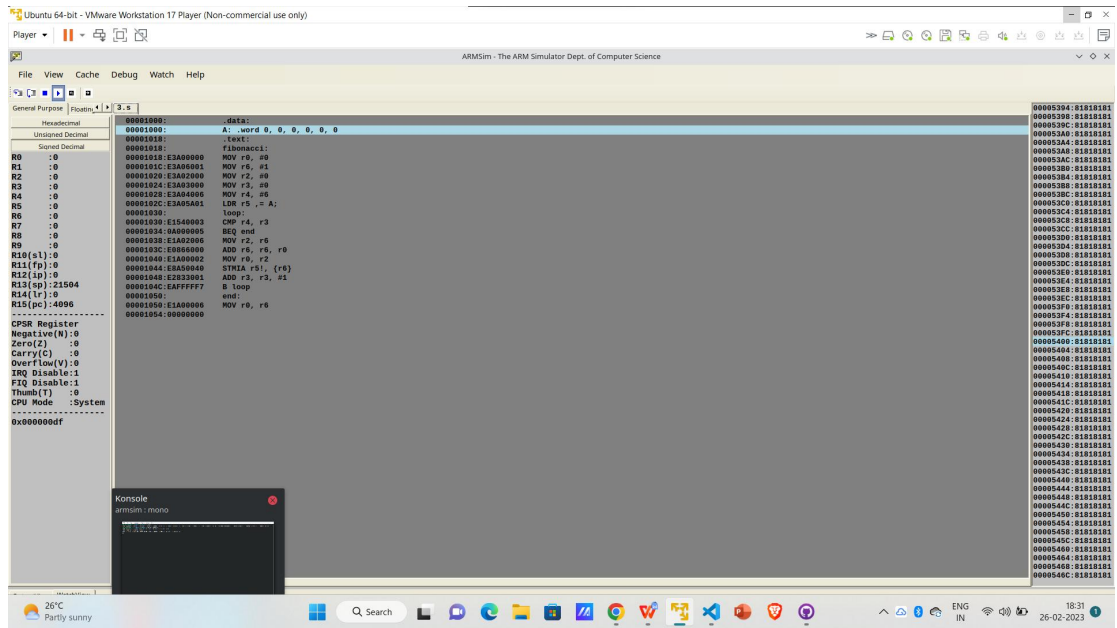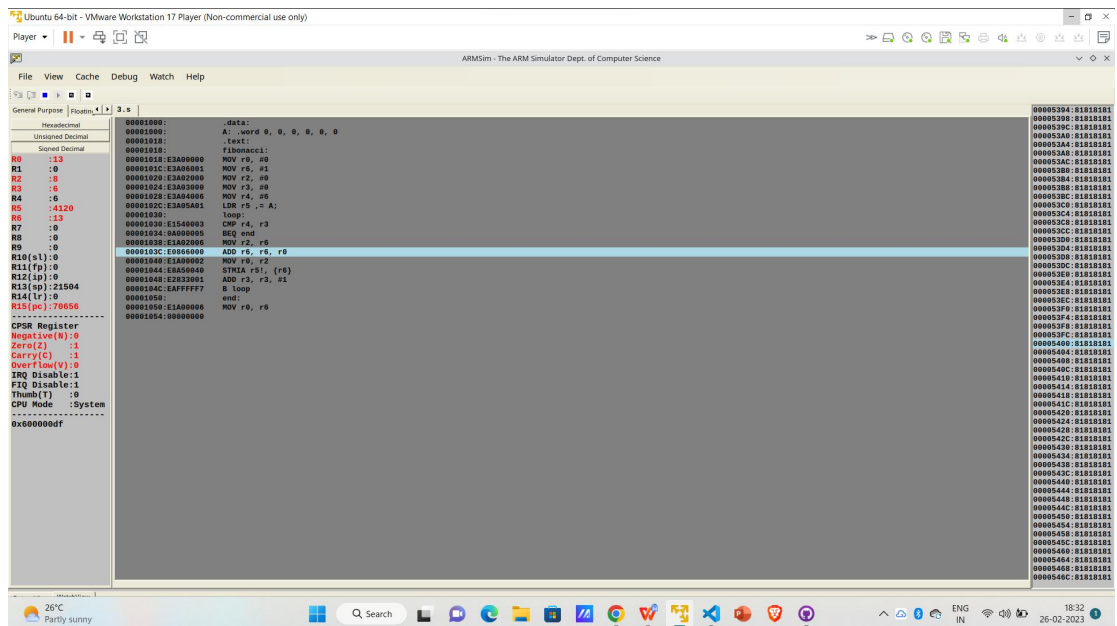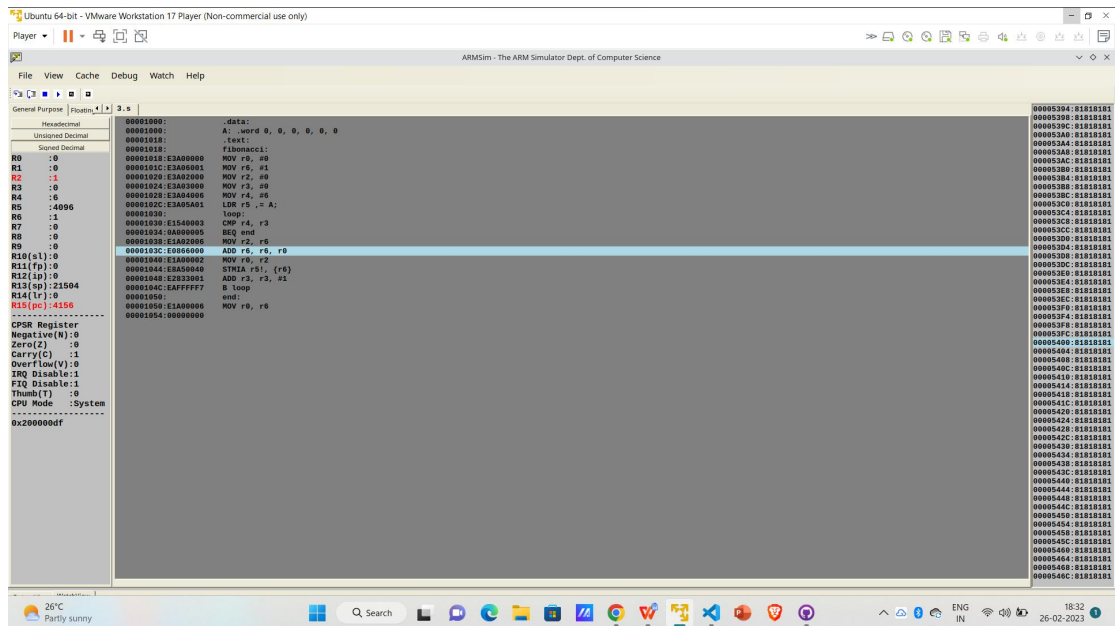
3. Implementation of ARM7TDMI code to generate Fibonacci series,

```
.data:
A: .word 0, 0, 0, 0, 0, 0
.text:
fibonacci:
MOV r0, #0
MOV r6, #1
MOV r2, #0
MOV r3, #0
MOV r4, #6
LDR r5 ,= A;
loop:
CMP r4, r3
BEQ end
MOV r2, r6
ADD r6, r6, r0
MOV r0, r2
STMIA r5!, {r6}
ADD r3, r3, #1
B loop
end:
MOV r0, r6
```

Player

ARMSim - The ARM Simulator Dept. of Computer Science

File   View   Cache   Debug   Watch   Help

General Purpose   Floating   3.s

Hexadecimal
Unsigned Decimal
Signed Decimal

R0   :0
R1   :0
R2   :0
R3   :0
R4   :0
R5   :0
R6   :0
R7   :0
R8   :0
R9   :0
R10(sl):0
R11(fp):0
R12(ip):0
R13(sp):21504
R14(lr):0
R15(pc):4096

CPSR Register
Negative(N):0
Zero(Z)   :0
Carry(C)   :0
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System

0x000000df

```
00001000:              .data:
00001000:              A: .word 0, 0, 0, 0, 0, 0
00001018:              .text:
00001018:              fibonacci:
00001018:E3A00000      MOV r0, #0
0000101C:E3A06001      MOV r6, #1
00001020:E3A02000      MOV r2, #0
00001024:E3A03000      MOV r3, #0
00001028:E3A04006      MOV r4, #6
0000102C:E3A05A01      LDR r5 ,= A;
00001030:              loop:
00001030:E1540003      CMP r4, r3
00001034:0A000005      BEQ end
00001038:E1A02006      MOV r2, r6
0000103C:E0866000      ADD r6, r6, r0
00001040:E1A00002      MOV r0, r2
00001044:E8A50040      STMIA r5!, {r6}
00001048:E2833001      ADD r3, r3, #1
0000104C:EAFFFFF7      B loop
00001050:              end:
00001050:E1A00006      MOV r0, r6
00001054:00000000
```

Konsole
armsim : mono

26°C
Partly sunny

Search

ENG
IN

18:31
26-02-2023

Largest

.TEXT

LDR R1, =A

```
LDR R2, =B
MOV R3,#5
LDR R5,[R1];R5 IS MAXIMUM VALUE
LOOP:
ADD R1,R1,#4

SUBS R3,R3,#1
CMP R3 ,#0
BEQ END;
LDR R6,[R1]
CMP R6,R5
BGT SWAP
B LOOP

SWAP:
MOV R5,R6
B LOOP


END:
SWI 0X011

.DATA
A: .WORD 1, 2, 10, 4, 5
B: .WORD 0
```

Smallest

```
.TEXT

LDR R1, =A
LDR R2, =B
MOV R3,#5
LDR R5,[R1];R5 IS MAXIMUM VALUE
LOOP:
ADD R1,R1,#4

SUBS R3,R3,#1
CMP R3 ,#0
BEQ END;
LDR R6,[R1]
CMP R6,R5
BLT SWAP
B LOOP

SWAP:
MOV R5,R6
B LOOP


END:
SWI 0X011

.DATA
A: .WORD 1, 2, 10, 4, 5
B: .WORD 0
```

Player

ARMSim - The ARM Simulator Dept. of Computer Science

File   View   Cache   Debug   Watch   Help

General Purpose | Floating | smallest.s

Hexadecimal
Unsigned Decimal
Signed Decimal

R0   :0
R1   :4184
R2   :4184
R3   :0
R4   :0
R5   :1
R6   :5
R7   :0
R8   :0
R9   :0
R10(sl):0
R11(fp):0
R12(ip):0
R13(sp):21504
R14(lr):0
R15(pc):4152

CPSR Register
Negative(N):0
Zero(Z)   :1
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System

0x600000df

```
                        .TEXT

00001000:E59F1034       LDR R1, =A
00001004:E59F2034       LDR R2, =B
00001008:E3A03005       MOV R3,#5
0000100C:E5915000       LDR R5,[R1];R5 IS MAXIMUM VALUE
00001010:                LOOP:
00001010:E2811004       ADD R1,R1,#4

00001014:E2533001       SUBS R3,R3,#1
00001018:E3530000       CMP R3 ,#0
0000101C:0A000005       BEQ END;
00001020:E5916000       LDR R6,[R1]
00001024:E1560005       CMP R6,R5
00001028:BA000000       BLT SWAP
0000102C:EAFFFFF7       B LOOP

00001030:                SWAP:
00001030:E1A05006       MOV R5,R6
00001034:EAFFFFF5       B LOOP

00001038:                END:
00001038:EF000011       SWI 0X011

                        .DATA
00001044:                A: .WORD 1, 2, 10, 4, 5
00001050:                B: .WORD 0
```

00005394:81818181
00005398:81818181
0000539C:81818181
000053A0:81818181
000053A4:81818181
000053A8:81818181
000053AC:81818181
000053B0:81818181
000053B4:81818181
000053B8:81818181
000053BC:81818181
000053C0:81818181
000053C4:81818181
000053C8:81818181
000053CC:81818181
000053D0:81818181
000053D4:81818181
000053D8:81818181
000053DC:81818181
000053E0:81818181
000053E4:81818181
000053E8:81818181
000053EC:81818181
000053F0:81818181
000053F4:81818181
000053F8:81818181
000053FC:81818181
00005400:81818181
00005404:81818181
00005408:81818181
0000540C:81818181
00005410:81818181
00005414:81818181
00005418:81818181
0000541C:81818181
00005420:81818181
00005424:81818181
00005428:81818181
0000542C:81818181
00005430:81818181
00005434:81818181
00005438:81818181
0000543C:81818181
00005440:81818181
00005444:81818181
00005448:81818181
0000544C:81818181
00005450:81818181
00005454:81818181
00005458:81818181
0000545C:81818181
00005460:81818181
00005464:81818181
00005468:81818181
0000546C:81818181

26°C
Partly cloudy

Search

ENG
IN

18:51
26-02-2023