

ASSIGNMENT - 2

COMPUTER ARCHITECTURE AND MICROPROCESSORS

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Problem: Write a SimpleRisc Assembly Program to find Ramanujan Number, the smallest number that can be expressed as a sum of two cubes in two different ways.

Solution:

```
mov r0,0
mov r1,0
mov r2,0

.loop1:
    mov r3,0
    add r1,r1,1

    .loop2:
        add r1,r1,1
        mov r2,0

        .loop3:
            add r2,r2,1
            cmp r2,r1
            bgt .loop2

            mul r4,r1,r1
            mul r4,r4,r1
            mul r5,r2,r2
            mul r5,r5,r2
            add r6,r4,r5

            cmp r6,r0
            bgt .loop1
            cmp r0,r6
            bgt .loop3

            cmp r6,r0
            add r3,r3,1

            cmp r3,2
            beq .exit

        mov r1,0
        b .loop2
```