NAME : KESHAV GAUR
ROLL NO. : AC-1223

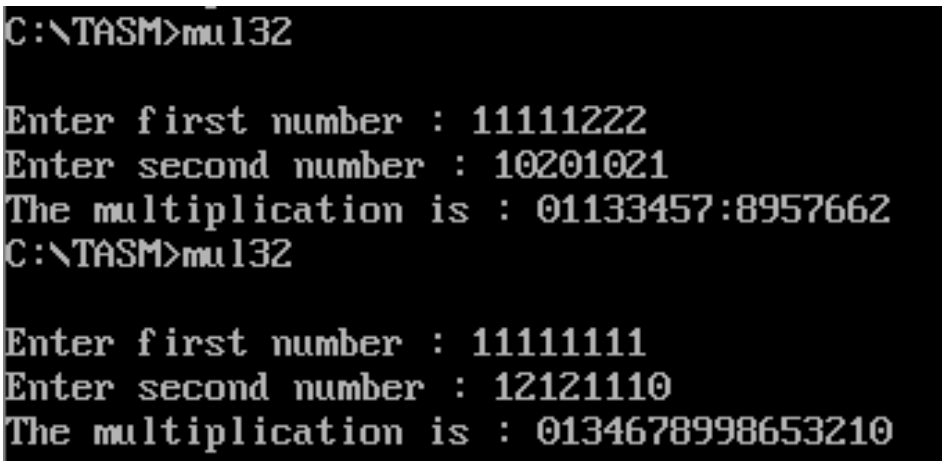
32bit MULTIPLICATION

```
.model small
.386
.data
 msg1 db 10,"Enter first number : $"
 msg2 db 10,"Enter second number : $"
 msg3 db 10,"The multiplication is : $"
 data1 dd ?
 data2 dd ?
 prod1 dd ?
 prod2 dd ?
.code
.startup
 MOV EBX,00

 MOV AH,09
 LEA DX,msg1
 INT 21H

 MOV CX,8
 AGAIN : MOV AH,01
              INT 21H
              CMP AL,'A'
              JGE L1
              SUB AL,30H
              JMP L2

            L1: SUB AL,37H

            L2: SHL EBX,4
           ADD BL,AL
 LOOP AGAIN

 MOV data1,EBX

 MOV AH,09
 LEA DX,msg2
 INT 21H

 MOV CX,8
 AGAIN2 : MOV AH,01
               INT 21H
              CMP AL,'A'
              JGE L3
              SUB AL,30H
              JMP L4

       L3: SUB AL,37H
```

```
      L4: SHL EBX,4
          ADD BL,AL
LOOP AGAIN2

MOV data2,EBX

MOV EBX,00
MOV EAX,00
MOV EDX,00

MOV EAX,data1
MOV EBX,data2

MUL EBX

MOV prod1,EDX
MOV prod2,EAX

MOV AH,09
LEA DX,msg3
INT 21H

MOV EBX,prod1
MOV CX,8
AGAIN3: ROL EBX,4
            MOV DL,BL
            AND DL,0FH
            CMP DL,'A'
            JGE L5
           ADD DL,30H
           JMP L6

      L5 : ADD DL,37H
      L6 : MOV AH,02
           INT 21H
LOOP AGAIN3

MOV EBX,prod2
MOV CX,8
AGAIN4: ROL EBX,4
            MOV DL,BL
            AND DL,0FH
           CMP DL,'A'
           JGE L7
          ADD DL,30H
          JMP L8

      L7 : ADD DL,37H
      L8 : MOV AH,02
           INT 21H
LOOP AGAIN4
MOV AH,4CH
```

```
 INT 21H
.exit
End
```

OUTPUT



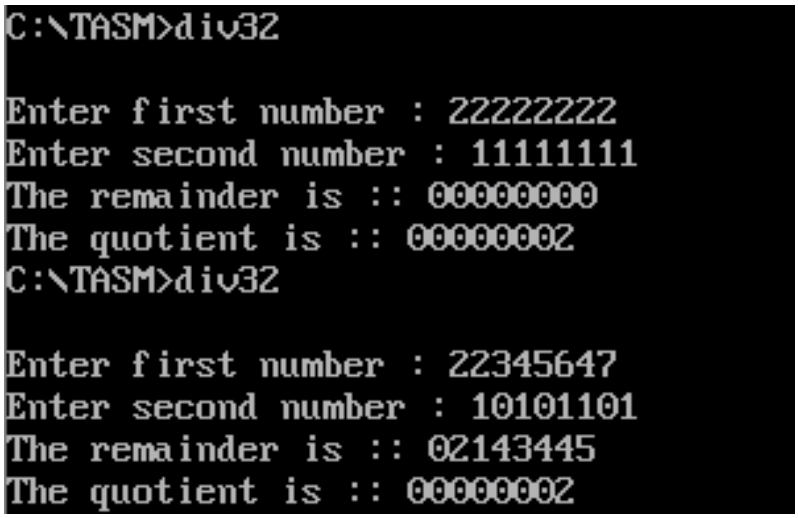
32bit Division

```
.model small
.386
.data
 data1 dd 00h
 data2 dd 00h
 remdr dd ?
 quot dd ?
 msg1 db 10,"Enter first number : $"
 msg2 db 10,"Enter second number : $"
 msg3 db 10,"The remainder is :: $"
 msg4 db 10,"The quotient is :: $"

.code
.startup
 MOV EBX,00

 MOV AH,09
 LEA DX,msg1
 INT 21H

 MOV CX,8
 AGAIN: MOV AH,01
       INT 21H
          CMP AL,'A'
          JGE L1
       SUB AL,30H
       JMP L2

       L1: SUB  AL,37H
          L2: SHL EBX,4

          ADD BL,AL
 LOOP AGAIN

 MOV data1,EBX

 MOV AH,09
 LEA DX,msg2
 INT 21H

 MOV BX,0
 MOV CX,8
 AGAIN2: MOV AH,01
       INT 21H
          CMP AL,'A'
       JGE L3
       SUB AL,30H
          JMP L4

       L3: SUB AL,37H
```

```
      L4: SHL EBX,4

          ADD BL,AL
LOOP AGAIN2

MOV data2,EBX

MOV EBX,0
MOV EDX,0
MOV EAX,0
MOV EAX,data1
MOV EBX,data2

DIV EBX
MOV remdr,EDX
MOV quot,EAX

MOV AH,09
LEA DX,msg3
INT 21H

MOV EBX,remdr

MOV CX,8
AGAIN3: ROL EBX,4
          MOV DL,BL
       AND DL,0FH
       CMP DL,9
       JG L5
       ADD DL,30H
       JMP L6

       L5: ADD DL,37H
       L6: MOV AH,02H
          INT 21H
LOOP AGAIN3

MOV AH,09H
LEA DX,msg4
INT 21H

MOV EBX,quot

MOV CX,8
AGAIN4: ROL EBX,4
          MOV DL,BL
       AND DL,0FH
       CMP DL,9
       JG L7
       ADD DL,30H
       JMP L8
```

```
        L7 : ADD DL,37H
        L8 : MOV AH,02
             INT 21H
 LOOP AGAIN4
.exit
end
```

OUTPUT

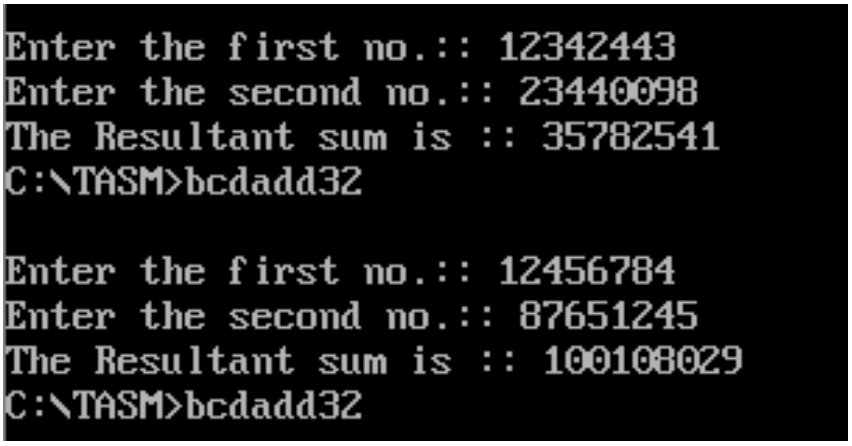


32bits BCD ADDITION

```
.model small
.386
.data
 num1 dd 00000000H
 num2 dd 00000000H
 num3 dd 00000000H
 msg db 10,"Enter the first no.:: $"
 msg1 db 10,"Enter the second no.:: $"
 msg2 db 10,"The Resultant sum is :: $"

.code
.startup

 MOV AH,09
 LEA DX,msg
 INT 21H

 MOV EBX,0

 MOV CX,8
 AGAIN: MOV AH,01
        INT 21H
        CMP AL,'A'
        JGE L1
        SUB AL,30H
        JMP L2

        L1: SUB AL,37H
        L2: SHL EBX,4
           ADD BL,AL
 LOOP AGAIN

 MOV num1,EBX

 MOV AH,09
 LEA DX,msg1
 INT 21H

 MOV EBX,0

 MOV CX,8
 AGAIN1:MOV AH,01
        INT 21H
        CMP AL,'A'
        JGE L3
        SUB AL,30H
        JMP L4

        L3: SUB AL,37H
        L4: SHL EBX,4
```

```
        ADD BL,AL
  LOOP AGAIN1

  MOV num2, EBX

  MOV AX, word ptr num1
  MOV DX, word ptr num2
  ADD AL,DL

  DAA
  MOV BL,AL
  MOV AL,AH
  ADC AL,DH

  DAA
  MOV BH,AL

  MOV word ptr num3,BX

  MOV AX,word ptr num1+2
  MOV DX,word ptr num2+2
  ADC AL,DL
  DAA
  MOV BL,AL

  MOV AL,AH
  ADC AL,DH
  DAA
  MOV BH,AL

  MOV word ptr num3+2,BX
  MOV EBX,num3

  MOV AH,09H
  LEA DX,msg2
  INT 21h

  JNC l6
  MOV AH,02H
  MOV DL,"1"
  INT 21h

  L6: MOV CX,8
  AGAIN2: ROL EBX,4
        MOV DL,BL
        AND DL,0FH
        ADD DL,30H
        MOV AH,02
        INT 21H
LOOP AGAIN2
.exit
end
```

OUTPUT


Enter the first no.:: 12342443
Enter the second no.:: 23440098
The Resultant sum is :: 35782541
C:\TASM>bcdadd32
Enter the first no.:: 12456784
Enter the second no.:: 87651245
The Resultant sum is :: 100108029
C:\TASM>bcdadd32

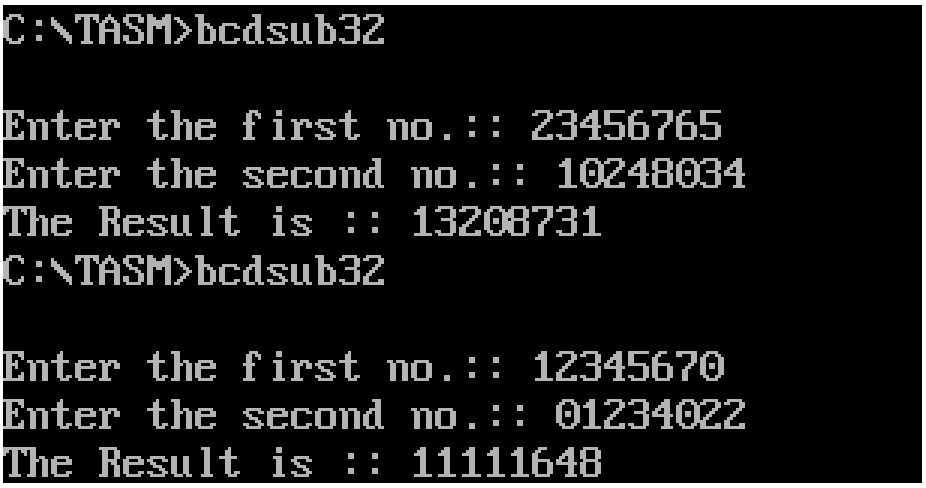
32bit BCD SUBTRACTION

```
.model small
.386
.data
 num1 dd 00000000H
 num2 dd 00000000H
 num3 dd 00000000H
 msg db 10,"Enter the first no.:: $"
 msg1 db 10,"Enter the second no.:: $"
 msg2 db 10,"The Resultant sum is :: $"

.code
.startup

 MOV AH,09
 LEA DX,msg
 INT 21H

 MOV EBX,0

 MOV CX,8
 AGAIN: MOV AH,01
        INT 21H
        CMP AL,'A'
        JGE L1
        SUB AL,30H
        JMP L2

        L1: SUB AL,37H
        L2: SHL EBX,4
           ADD BL,AL
 LOOP AGAIN

 MOV num1,EBX

 MOV AH,09
 LEA DX,msg1
 INT 21H

 MOV EBX,0

 MOV CX,8
 AGAIN1:MOV AH,01
        INT 21H
        CMP AL,'A'
        JGE L3
        SUB AL,30H
        JMP L4

        L3: SUB AL,37H
        L4: SHL EBX,4
```

```
        ADD BL,AL
  LOOP AGAIN1

  MOV num2, EBX

  MOV AX, word ptr num1
  MOV DX, word ptr num2
  SUB AL,DL

  DAS

  MOV BL,AL
  MOV AL,AH
  SBB AL,DH

  DAS
  MOV BH,AL

  MOV word ptr num3,BX

  MOV AX,word ptr num1+2
  MOV DX,word ptr num2+2
  SBB AL,DL
  DAS
  MOV BL,AL

  MOV AL,AH
  SBB AL,DH
  DAS
  MOV BH,AL

  MOV word ptr num3+2,BX
  MOV EBX,num3

  MOV AH,09H
  LEA DX,msg2
  INT 21h

  JNC l6
  MOV AH,02H
  MOV DL,"1"
  INT 21h

  L6: MOV CX,8
  AGAIN2: ROL EBX,4
        MOV DL,BL
        AND DL,0FH
        ADD DL,30H
        MOV AH,02
        INT 21H
 LOOP AGAIN2
 .exit
```

end

OUTPUT


C:\TASM>bcdsub32
Enter the first no.:: 23456765
Enter the second no.:: 10248034
The Result is :: 13208731
C:\TASM>bcdsub32
Enter the first no.:: 12345670
Enter the second no.:: 01234022
The Result is :: 11111648