

TASK 1:

```
.model small
.stack 100h
.data
recov dw 0
msg1 db 10,13,'Enter the double digit number: $'
safe dw 0
msg2 db 10,13,'It is a palindrome $'
msg3 db 10,13,'It is not a palindrome $'
rem dw 0
qou dw 0
tot dw 0
digitCount db 0
temp dw 0
num dw 0
conti dw 0
.code
mov ax,@data
mov ds,ax
mov ax,0
mov bx,0
mov cx,0
```

MDIS: ;Input

```
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
```

```
mov dx,0
Input:
mov ah,01
int 21H
cmp al,13
JE re
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,num
mov bl,10
```

```
mul bl
add ax,temp
mov num,ax
inc digitCount
jmp Input
```

```
re:
mov ax,num
mov safe,ax
```

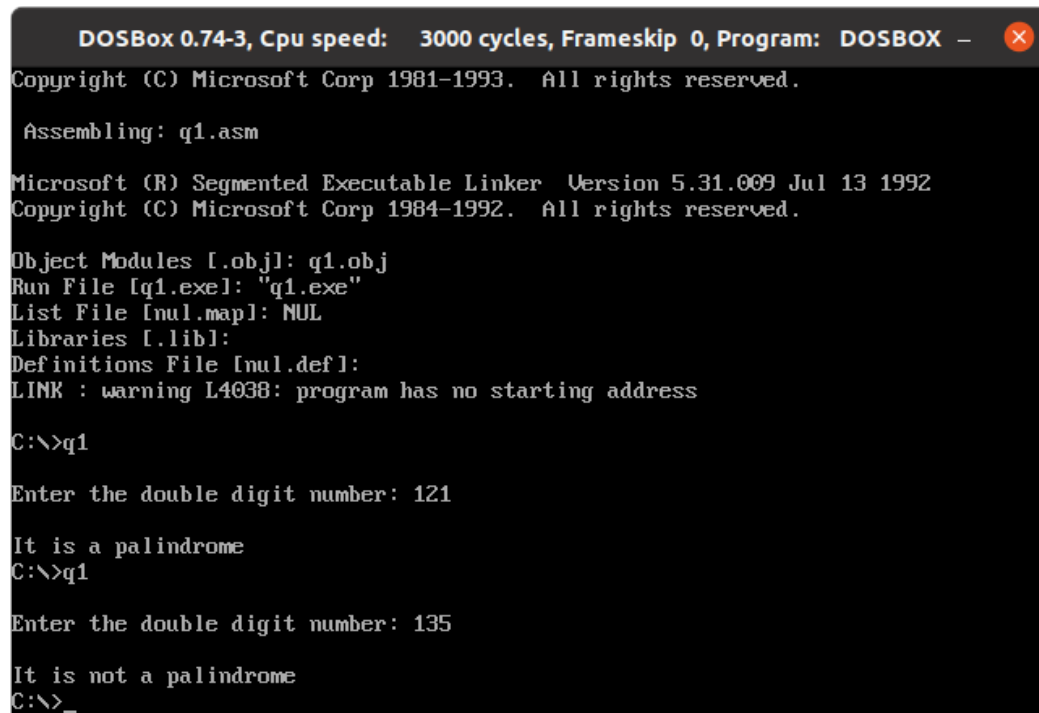
```
result:
mov dx,0
mov ax,num
```

```
mov bx,0
mov bx,10
div bx
mov qou,ax
add rem,dx
mov ax,rem
mov bl,10
mul bl
mov rem,ax
mov ax,qou
mov num,ax
cmp num,0
jne result
mov dx,0
mov ax,rem
mov bx,10
div bx
mov rem,ax
mov dx,safe
mov ax,rem
cmp ax,dx
je palin
mov dx,0
lea dx, msg3
mov ah,09h
int 21h
```

```
jmp exit
```

```
palin:  
mov dx,0  
lea dx, msg2  
mov ah,09h  
int 21h
```

```
exit:  
mov ah,04ch  
int 21h  
end
```



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX  
Copyright (C) Microsoft Corp 1981-1993. All rights reserved.  
Assembling: q1.asm  
Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992  
Copyright (C) Microsoft Corp 1984-1992. All rights reserved.  
Object Modules [l.obj]: q1.obj  
Run File [q1.exe]: "q1.exe"  
List File [nul.map]: NUL  
Libraries [libl]:  
Definitions File [nul.def]:  
LINK : warning L4038: program has no starting address  
C:\>q1  
Enter the double digit number: 121  
It is a palindrome  
C:\>q1  
Enter the double digit number: 135  
It is not a palindrome  
C:\>_
```

Task 2:

```
.model small  
.stack 100h  
.data
```

```
msg1 db 10,13,'Enter The number : $'
```

```
msg2 db 10,13,'Total sum is: $'
```

```
divi db 1
num1 dw 0
```

```
tot dw 0
digitCount db 0
temp dw 0
digitCount1 db 0
```

```
.code
mov ax,@data
mov ds,ax
mov ax,0
mov bx,0
mov cx,0
```

;input

```
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
```

```
Input:
mov ah,01
int 21H
cmp al,13
JE continue
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,num1
mov bl,10
mul bl
add ax,temp
mov num1,ax
inc digitCount
jmp Input
```

```
continue:
mov bx,1
mov cx,num1
```

```
mov ax,num1
mov tot,0
```

```
result:
mov dx,0
mov ax,num1
div bx
add tot,ax
inc bx
cmp cx,num1
loop result
```

```
ans:
mov dx,0
```

```
lea dx, msg2
mov ah,09h
int 21h
```

```
val:
mov ax,tot
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov tot,ax
inc cx
cmp tot,0
jne val
display:
pop dx
add dl,48
mov ah,02
int 21h
```

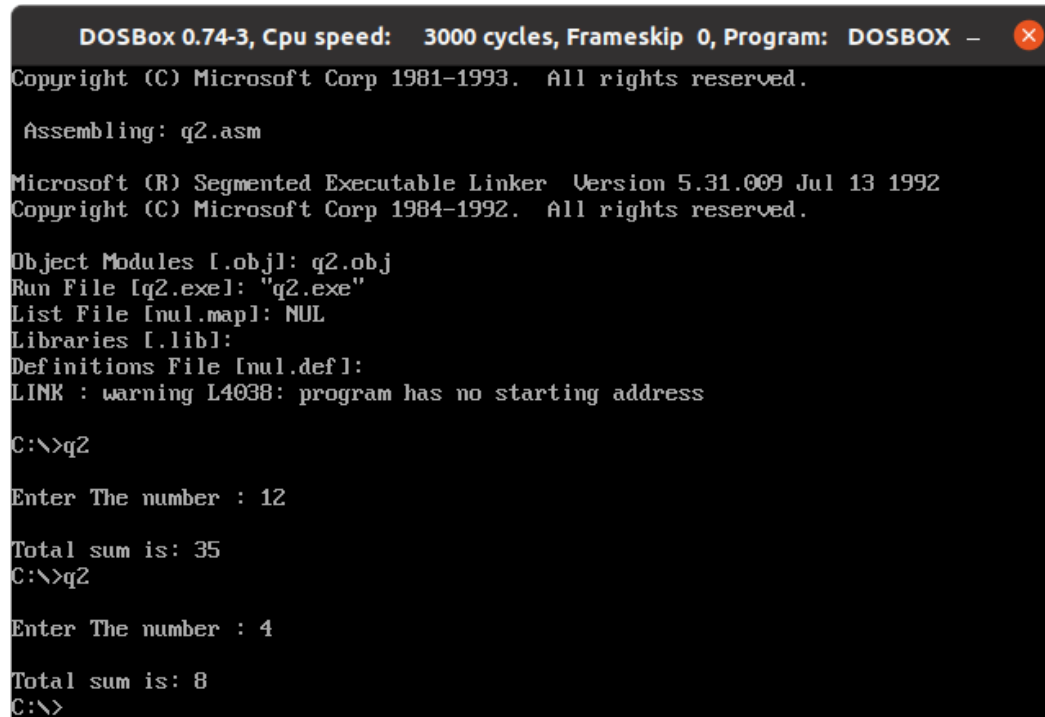
loop display

exit:

mov ah,04ch

int 21h

End



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
Copyright (C) Microsoft Corp 1981-1993. All rights reserved.

Assembling: q2.asm

Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [l.obj]: q2.obj
Run File [q2.exe]: "q2.exe"
List File [nul.map]: NUL
Libraries [lib]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q2

Enter The number : 12

Total sum is: 35
C:\>q2

Enter The number : 4

Total sum is: 8
C:\>
```

Task 3:

.model small

.stack 100h

.data

msg1 db 'Enter your first number : \$'

msg2 db 'Enter your second number : \$'

msg5 db 'The sum of the odd numbers is : \$'

Number1 dw 0

Number2 dw 0

counter1 db 0

temp1 dw 0

sumodd dw 0

.code

mov ax,@data

mov ds,ax

mov ax,0

mov bx,0

mov cx,0

mov dx,0

```
lea dx, msg1
mov ah,09h
int 21h
Input1:
mov ah,01
int 21H
cmp al,13
JE break1
sub al,48
```

```
mov ah,0
mov temp1,ax
mov ax,0
mov ax,Number1
mov bl,10
mul bl
add ax,temp1
mov Number1,ax
jmp Input1
```

```
break1:
lea dx, msg2
mov ah,09h
int 21h
mov temp1,0
mov ax,0
mov bx,0
mov cx,0
mov dx,0
Input2:
mov ah,01
int 21H
cmp al,13
JE checkodd
sub al,48
mov ah,0
mov temp1,ax
mov ax,0
mov ax,Number2
mov bl,10
mul bl
add ax,temp1
mov Number2,ax
jmp Input2
```

```
checkodd:
mov counter1,0
mov bx,Number1
mov temp1, bx
mov ax , Number1
```

```
add Number1,1
mov bl , 2
div bl
mov al, ah
cmp al , 1
je sumcal
mov ax,Number1
cmp ax, Number2
jbe checkodd
jmp displaysum
```

```
sumcal:
mov bx , temp1
add sumodd, bx
pushodd:
mov bx,0
mov ax,temp1
mov bl ,10
div bl
mov dl,ah
push dx
mov ah,0
mov temp1,ax
inc counter1
cmp temp1,0
jne pushodd
popnum:
pop Dx
Add DI,48
Mov Ah,02
Int 21H
Cmp counter1,1
je checkodd
Dec counter1
Jmp popnum
```

```
displaysum:
mov dl ,13
```



```
mov ah,02h
int 21h
lea dx, msg5
mov ah,09h
int 21h
mov bx, sumodd
mov temp1 ,bx
pushsum:
mov bx,0
mov ax,temp1
mov bl ,10
div bl
mov dl,ah
push dx
mov ah,0
mov temp1,ax
inc counter1
cmp temp1,0
jne pushsum
popsum:
Pop Dx
Add DI,48
Mov Ah,02
Int 21H
Cmp counter1,1
JE exit
Dec counter1
Jmp popsum
exit:
mov ah,4ch
int 21h
end
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
Enter The number : 4
Total sum is: 8
C:\>ml q3.asm
Microsoft (R) Macro Assembler Version 6.11
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Assembling: q3.asm

Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [.obj]: q3.obj
Run File [q3.exe]: "q3.exe"
List File [nul.map]: NUL
Libraries [libl]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q3
Enter your first number : 20
Enter your second number : 30
The sum of the odd numbers is : 125
C:\>
```

Task 4:

.model small

.stack 100h

.data

msg1 db 10,13,'Enter information for the first distance: \$'

msg2 db 10,13,'Enter information for the second distance: \$'

msgf db 10,13,'Enter feet: \$'

msgi db 10,13,'Enter inches: \$'

msgs db 10,13,'Total Sum of distance: \$'

msga db ' feet & \$'

msgb db ' inches: \$'

tf dw 0

ti dw 0

feet1 dw 0

inch1 dw 0

inch2 dw 0

feet2 dw 0

per dw 0

tot dw 0

temp dw 0

digitcount db 0

.code

mov ax,@data

mov ds,ax

```
mov ax,0
mov bx,0
mov cx,0
```

```
;input for the first dist
```

```
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
lea dx, msgf
mov ah,09h
int 21h
mov dx,0
Input1:
mov ah,01
int 21H
cmp al,13
JE continue1
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,feet1
mov bl,10
mul bl
add ax,temp
mov feet1,ax
inc digitCount
jmp Input1
```

```
continue1:
lea dx, msgi
mov ah,09h
int 21h
Input2:
mov ah,01
int 21H
cmp al,13
JE continue2
sub al,48
mov ah,0
mov temp,ax
mov ax,0
```

```
mov ax,inch1
mov bl,10
mul bl
add ax,temp
mov inch1,ax
inc digitCount
jmp Input2
```

```
continue2:
mov dx,0
lea dx, msg2
mov ah,09h
int 21h
lea dx, msgf
mov ah,09h
int 21h
mov dx,0
Input3:
mov ah,01
int 21H
cmp al,13
JE continue3
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,feet2
mov bl,10
mul bl
add ax,temp
mov feet2,ax
inc digitCount
jmp Input3
```

```
continue3:
lea dx, msgi
mov ah,09h
int 21h
Input4:
mov ah,01
int 21H
cmp al,13
JE continue4
sub al,48
```

```
mov ah,0
mov temp,ax
mov ax,0
mov ax,inch2
mov bl,10
mul bl
add ax,temp
mov inch2,ax
inc digitCount
jmp Input4
```

```
continue4:
mov ax,inch1
add ax,inch2
mov ti,ax
cmp ax,12
jge addi
jmp naddi
addi:
add feet1,1
sub ax,12
mov ti,ax
naddi:
mov ax,feet1
add ax,feet2
mov tf,ax
```

```
mov dx,0
lea dx, msg
mov ah,09h
int 21h
val:
mov ax,tf
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov tf,ax
inc cx
cmp tf,0
jne val
display:
```

```
pop dx
add dl,48
mov ah,02
int 21h
loop display
```

```
mov dx,0
lea dx, msga
mov ah,09h
int 21h
pval:
mov ax,ti
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov ti,ax
inc cx
cmp ti,0
jne pval
pdisplay:
pop dx
add dl,48
mov ah,02
int 21h
loop pdisplay
mov dx,0
lea dx, msgb
mov ah,09h
int 21h
```

```
exit:
mov ah,04ch
int 21h
end
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [.obj]: q4.obj
Run File [q4.exe]: "q4.exe"
List File [nul.map]: NUL
Libraries [.lib]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q4

Enter information for the first distance:
Enter feet: 12

Enter inches: 8

Enter information for the second distance:
Enter feet: 9

Enter inches: 11

Total Sum of distance: 22 feet & 7 inches:
C:\>
```

Task 5:

```
.model small
.stack 100h
```

```
.data
dit dw 0
s1 dw 0
s2 dw 0
msg1 db 10,13,'Enter the number: $'
msg2 db 10,13,'invalid input $'
msg3 db 10,13,'Factorial is:$'
msg4 db 10,13,'multi of 2 $'
facti dw 0
multo dw 0
temp dw 0
digitcount db 0
.code
mov ax,@data
mov ds,ax
mov ax,0
mov bx,0
mov cx,0
```

```
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
mov dx,0
Input:
mov ah,01
int 21H
cmp al,13
JE continue
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,s1
mov bl,10
mul bl
add ax,temp
mov s1,ax
inc digitCount
jmp Input
```

continue:

```
mov ax,s1
mov cx,s1
mov bx,s1
```

```
cmp bx,9
jge labss
```

```
mov bx,ax
fact:
dec bx
mul bx
cmp bx,1
jne fact
mov facti,ax
```



```
mov facti,ax
mov dx,0
lea dx, msg3
mov ah,09h
int 21h
mov cx,0
```

```
pval:
mov ax,facti
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov facti,ax
inc cx
cmp facti,0
jne pval
pdisplay:
pop dx
add dl,48
mov ah,02
int 21h
loop pdisplay
```

```
jmp exit
```

```
labss:
cmp ax,99
jge labss1
mov cx,0
mov dit,0
mov multo,0
mov s2,0
multi:
```

```
add s2,2
mov ax,s2
mov multo,ax
```

```
val:
mov ax,multo
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov multo,ax
inc cx
cmp multo,0
jne val
display:
pop dx
add dl,48
mov ah,02
int 21h
loop display
```

```
add dit,2
mov cx,dit
cmp cx,s1
mov cx,0
jnge multi
jmp exit
```

```
labss1:
mov dx,0
lea dx,msg2
mov ah,09h
int 21h
```

```
exit:
mov ah,4ch
int 21h
```

end

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [l.obj]: q5.obj
Run File [q5.exe]: "q5.exe"
List File [nul.map]: NUL
Libraries [l.lib]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q5

Enter the number: 5

Factorial is:120
C:\>q5

Enter the number: 14
2468101214
C:\>q5

Enter the number: 101

invalid input
C:\>
```

TASK 6:

.model small

.stack 100h

.data

msg1 db 'Enter marks of first subject : \$'

msg2 db 'Enter marks of second subject :: \$'

msg3 db 'Enter marks of third subject : : \$'

msg4 db 'Enter marks of fourth subject : \$'

msg5 db 'Enter marks of fifth subject : \$'

msg6 db 'Percentage is: \$'

msg7 db 'Marks obtained out of 500 are: \$'

digitCount db 0

temp dw 0

sEven dw 0

digitCount1 db 0

s1 dw 0

s2 dw 0

s3 dw 0

s4 dw 0

s5 dw 0

per dw 0

tot dw 0

```
.code
mov ax,@data
mov ds,ax
mov ax,0
mov bx,0
mov cx,0
;input for the first subject
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
mov dx,0
Input:
mov ah,01
int 21H
cmp al,13
JE continue
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,s1
mov bl,10
mul bl
add ax,temp
mov s1,ax
inc digitCount
jmp Input
```

```
;input for the 2nd subject
```

```
continue:
mov dx,0
lea dx, msg2
mov ah,09h
int 21h
Input1:
mov ax,0
mov temp,ax
mov ah,01
int 21H
cmp al,13
JE continue1
```

```
sub al,48
mov ah,0
```

```
mov temp,ax
mov ax,0
mov ax,s2
mov bl,10
mul bl
add ax,temp
mov s2,ax
inc digitCount1
jmp Input1
```

```
;input for the 3rdsubject
```

```
continue1:
mov dx, offset msg3
mov ah, 09h
int 21h
```

```
Input2:
```

```
mov ax,0
mov temp,ax
mov ah,01
int 21H
cmp al,13
JE continue2
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,s3
mov bl,10
mul bl
add ax,temp
mov s3,ax
inc digitCount1
jmp Input2
```

```
continue2: ;input for the 4th subject
```

```
mov dx, offset msg4
mov ah, 09h
int 21h
Input3:
mov ax,0
mov temp,ax
```

```
mov ah,01
int 21H
cmp al,13
JE continue3
```

```
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,s4
mov bl,10
mul bl
add ax,temp
mov s4,ax
inc digitCount1
jmp Input3
```

```
;input for the 5th subject
```

```
continue3:
mov dx, offset msg5
mov ah, 09h
int 21h
Input4:
mov ax,0
mov temp,ax
mov ah,01
int 21H
cmp al,13
JE marks
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,s5
mov bl,10
mul bl
add ax,temp
mov s5,ax
inc digitCount1
jmp Input4
```

```
;total marks obtained
```

marks:

mov dx, offset msg7

mov ah, 09h

int 21h

mov ax,0

add ax,s1

add ax,s2

add ax,s3

add ax,s4

add ax,s5

mov tot,ax

mov per,ax

tval:

mov ax,tot

mov bl,10

div bl

mov dx,0

mov dl,ah

push dx

mov ah,0

mov tot,ax

inc cx

cmp tot,0

jne tval

display:

pop dx

add dl,48

mov ah,02

int 21h

loop display

MOV dl, 10

MOV ah, 02h

INT 21h

MOV dl, 13

MOV ah, 02h

INT 21h

;percentage

percentage:

mov dx, offset msg6

mov ah, 09h

int 21h

```
mov ax,0
mov ax,per
mov dx,0
mov bx,0
mov bx,5
div bx
mov per,ax
```

```
pval:
mov ax,per
mov bl,10
div bl
mov dx,0
mov dl,ah
push dx
mov ah,0
mov per,ax
inc cx
cmp per,0
jne pval
pdisplay:
pop dx
add dl,48
mov ah,02
int 21h
loop pdisplay
```

```
exit:
mov ah,04ch
int 21h
End
```



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX -
C:\>ml q6.asm
Microsoft (R) Macro Assembler Version 6.11
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Assembling: q6.asm

Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [.obj]: q6.obj
Run File [q6.exe]: "q6.exe"
List File [nul.map]: NUL
Libraries [.lib]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q6
Enter marks of first subject : 34
Enter marks of second subject :: 8
Enter marks of third subject : : 89
Enter marks of fourth subject : 90
Enter marks of fifth subject : 38
Marks obtained out of 500 are: 259
Percentage is: 51
C:\>_
```

Task 7:

```
.model small
.stack 100h
.data
recov dw 0
msg3 db 10,13,'Hours the car has travelled: $'
msg2 db 10,13,'Speed must be a positive value: $'
msg1 db 10,13,'Enter the speed of the vehicle in Mph: $'
msg4 db 10,13,'Hours must be greater than 0 $'
hour db 10,13,'Hour:: $'
dist db ' Distance:: $'
tot dw 0
digitCount db 0
temp dw 0
mph dw 0
conti dw 0
.code
mov ax,@data
mov ds,ax
mov ax,0
mov bx,0
mov cx,0
jmp MDIS
```

```
Inpu:
mov dx,0
lea dx, msg2
mov ah,09h
int 21h
```

```
MDIS:                                ;Input for the speed
mov dx,0
lea dx, msg1
mov ah,09h
int 21h
```

```
mov dx,0
Input:
mov ah,01
int 21H
cmp al,13
JE continue
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,mph
mov bl,10
mul bl
add ax,temp
mov mph,ax
inc digitCount
jmp Input
```

```
;Input for the hours
```

```
continue:
cmp mph,0
jb Inpu
jmp intol
```

```
chk:
mov dx,0
```

```
lea dx, msg4
mov ah,09h
int 21h
```

```
intol:
mov dx,0
lea dx, msg3
mov ah,09h
int 21h
```

```
Input1:
mov ah,01
int 21H
cmp al,13
JE continue1
sub al,48
mov ah,0
mov temp,ax
mov ax,0
mov ax,tot
mov bl,10
mul bl
add ax,temp
mov tot,ax
inc digitCount
jmp Input1
```

```
continue1:
cmp tot,0
jbe chk
```

```
Result:
mov conti,1
mov ax,mph
mov recov,ax
jmp nope
```

```
again:
```

```
mov ax,recov
mov mph,ax
sub conti,1
```

```
mov cx,conti  
l1:  
add mph,ax  
loop l1  
add conti,1
```

```
nope:  
mov dx, offset hour  
mov ah, 09h  
int 21h
```

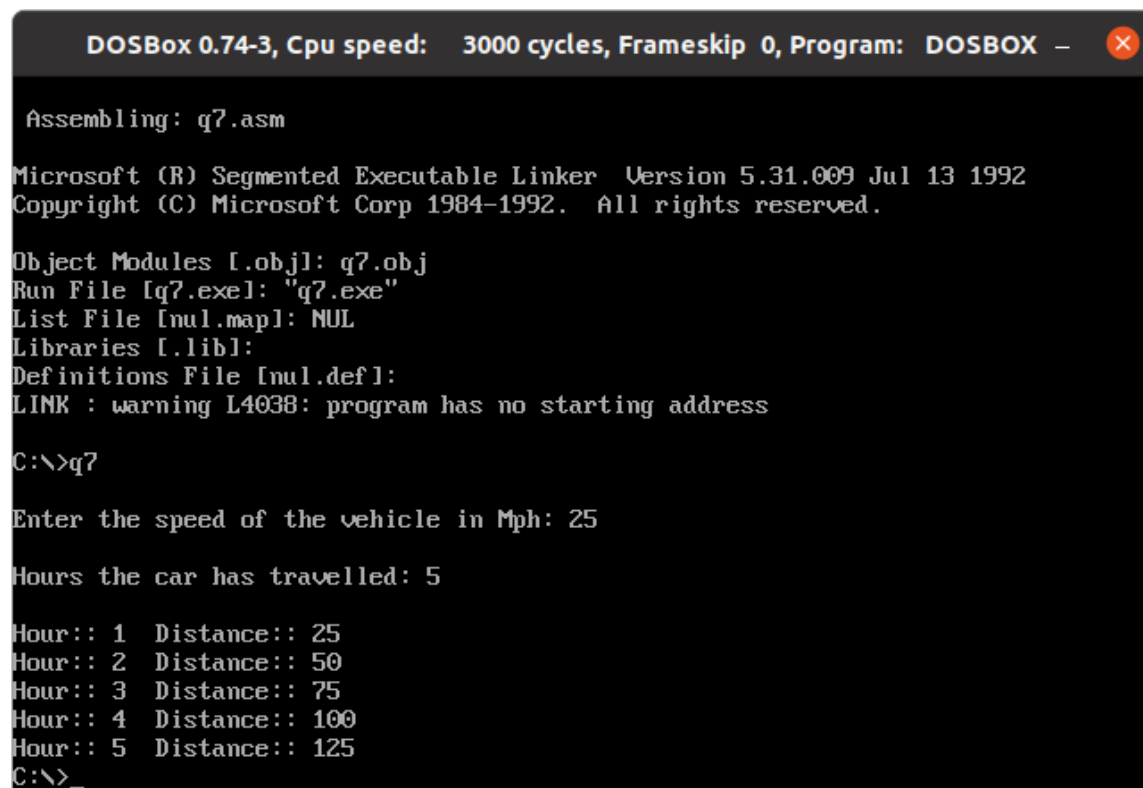
```
mov dx,conti  
add dx,48  
mov ah,02  
int 21h
```

```
mov dx, offset dist  
mov ah, 09h  
int 21h
```

```
pval:  
mov ax,mph  
mov bl,10  
div bl  
mov dx,0  
mov dl,ah  
push dx  
mov ah,0  
mov mph,ax  
inc cx  
cmp mph,0  
jne pval  
pdisplay:  
pop dx  
add dl,48  
mov ah,02  
int 21h  
loop pdisplay
```

```
add conti,1
mov dx,conti
mov ax,tot
cmp dx,ax
jle again
jmp exit
```

```
exit:
mov ah,04ch
int 21h
End
```



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX

Assembling: q7.asm

Microsoft (R) Segmented Executable Linker Version 5.31.009 Jul 13 1992
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Object Modules [.obj]: q7.obj
Run File [q7.exe]: "q7.exe"
List File [nul.map]: NUL
Libraries [.lib]:
Definitions File [nul.def]:
LINK : warning L4038: program has no starting address

C:\>q7

Enter the speed of the vehicle in Mph: 25

Hours the car has travelled: 5

Hour:: 1 Distance:: 25
Hour:: 2 Distance:: 50
Hour:: 3 Distance:: 75
Hour:: 4 Distance:: 100
Hour:: 5 Distance:: 125
C:\>_
```