x86 Example: Collect Keyboard Input

INT 16

Captures single key then returns to the program. Value is stored in AL register.

Code

```
INT 16
INT 20                  ;End program
```

```
C:\WINDOWS>debug
-a100
0F68:0100 int 16
0F68:0102 int 20
0F68:0104
-u100 102
0F68:0100 CD16          INT    16
0F68:0102 CD20          INT    20
-g=100 102

AX=0332  BX=0000  CX=0000  DX=0000  SP=FFEE  BP=0000  SI=0000  DI=0000
DS=0F68  ES=0F68  SS=0F68  CS=0F68  IP=0102    NV UP EI PL NZ NA PO NC
0F68:0102 CD20          INT    20
```

INT 21, AH=01h (Read character from STDIN)

Captures single key then returns to the program. Value is stored in AL register.

Code

```
MOV AH, 01          ;The 01 is the operation to collect keyboard input
INT 21              ;Main DOS API Call
INT 20              ;End program
```

```
-a100
0F68:0100 mov ah, 01
0F68:0102 int 21
0F68:0104 int 20
0F68:0106
-g=100 104
3
AX=0133  BX=0000  CX=0000  DX=0000  SP=FFEE  BP=0000  SI=0000  DI=0000
DS=0F68  ES=0F68  SS=0F68  CS=0F68  IP=0104    NV UP EI PL NZ NA PO NC
0F68:0104 CD20          INT    20
-
```

INT 21, AH=0Ah (Buffered Keyboard Input, multiple key captures)

Captures multiple key strokes until "enter" key is pressed. String stored at address equal to DX register.

Code

```
MOV DX, 0200        ;The immediate value is the location the keyoard input will be stored
MOV AH, 0A          ;The 0A is the operation to collect keyboard input
INT 21              ;Main DOS API Call
INT 20              ;End program
```
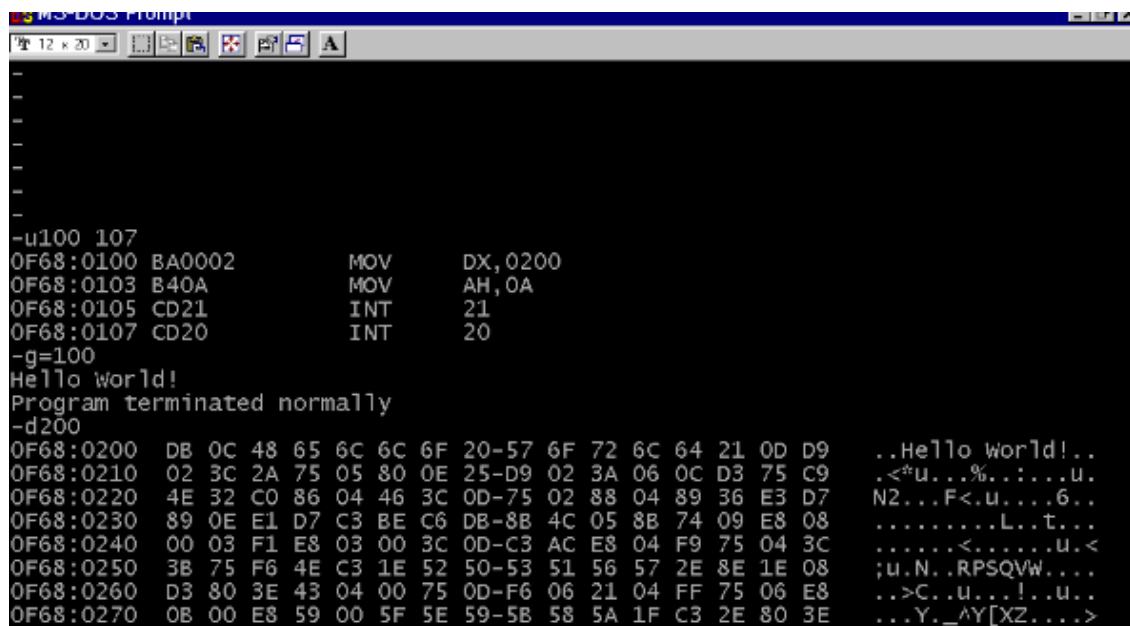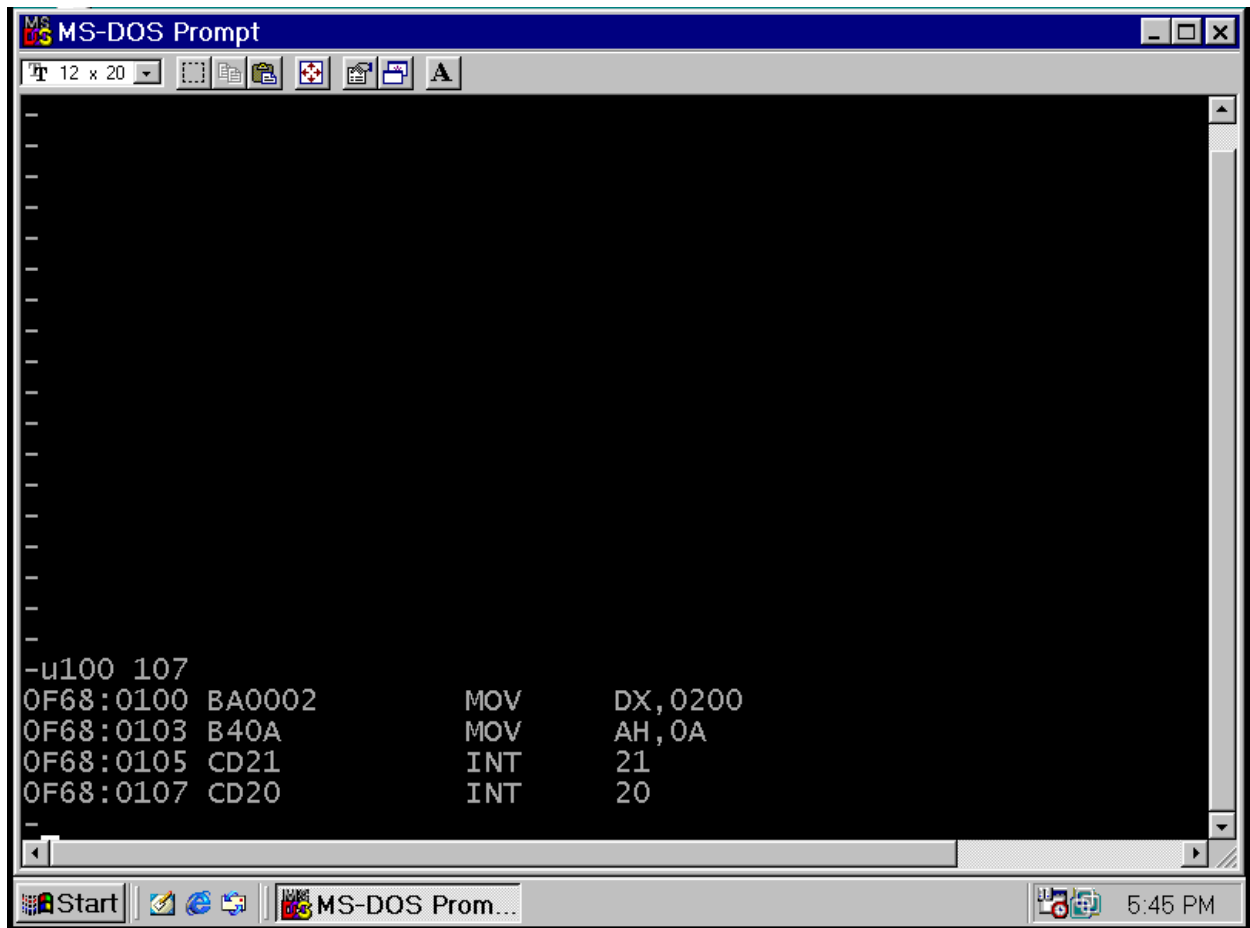

Steps:

1. Enter the program provided above.
2. To run type the following command into debug:
   a. g=100
3. Then type string that you wish to enter. Once finished press the "Enter" key to terminate program

```
-u100 107
OF68:0100 BA0002           MOV      DX,0200
OF68:0103 B40A             MOV      AH,0A
OF68:0105 CD21             INT      21
OF68:0107 CD20             INT      20
-g=100
Hello World!
Program terminated normally
```

4. Verify the results by typing the following command:
   a. D200

```
-u100 107
OF68:0100 BA0002        MOV      DX,0200
OF68:0103 B40A          MOV      AH,0A
OF68:0105 CD21          INT      21
OF68:0107 CD20          INT      20
-g=100
Hello World!
Program terminated normally
-d200
OF68:0200  DB 0C 48 65 6C 6C 6F 20-57 6F 72 6C 64 21 0D D9   ..Hello World!..
OF68:0210  02 3C 2A 75 05 80 0E 25-D9 02 3A 06 0C D3 75 C9   .<*u...%..:...u.
OF68:0220  4E 32 C0 86 04 46 3C 0D-75 02 88 04 89 36 E3 D7   N2...F<.u.....6..
OF68:0230  89 0E E1 D7 C3 BE C6 DB-8B 4C 05 8B 74 09 E8 08   .........L..t...
OF68:0240  00 03 F1 E8 03 00 3C 0D-C3 AC E8 04 F9 75 04 3C   ......<......u.<
OF68:0250  3B 75 F6 4E C3 1E 52 50-53 51 56 57 2E 8E 1E 08   ;u.N..RPSQVW....
OF68:0260  D3 80 3E 43 04 00 75 0D-F6 06 21 04 FF 75 06 E8   ..>C..u...!..u..
OF68:0270  0B 00 E8 59 00 5F 5E 59-5B 58 5A 1F C3 2E 80 3E   ...Y._^Y[XZ....>
```