**An**

**Assignment**

**On**

**“UVA Problem Solutions Using C and Assembly Language”**

**Assembly Language Laboratory**

**[ CSE 2208]**

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**Problem name:** Hashmat the Brave Warrior (10055)

**C Solution:**

#include<stdio.h>

int main() {

long long a, b;

while(scanf("%lld %lld", &a, &b) == 2) {

if(a > b) printf("%lld\n", a-b);

else printf("%lld\n", b-a);

}

return 0;

}

**Assembly Solution:**

|  |  |
| --- | --- |
| **.MODEL SMALL**  **.STACK 100H**  **.CODE**  **MAIN PROC**      **START:**  **CALL SCAN**    **MOV BH, DL ;move first value in bh**  **CALL SCAN**  **MOV BL, DL ;move second value in bl**  **SUB BH, BL ;SUBTRACT THE INPUT VALUES**  **MOV AX, 0 ;CLEAR AX**  **MOV AL, BH ;MOVE SUBTRACTION TO AL FOR PRINT PROC**  **CMP AL, 0**  **JG P ;IF SUBTRACTION IS NOT GREATER THAN ZERO**  **NEG AL ;NEGATE SUBTRACTION**        **P:**    **CALL PRINT**  **MOV AH, 2**  **MOV DL, 10 ;PRINT NEW LINE**  **INT 21H**  **MOV DL, 13 ;PRINT CARRIGE RETURN**  **INT 21H**  **JMP START ;TAKE INPUT AGAIN**  **RET**  **MAIN ENDP**  **;a procedure that read an integer value**  **;of one or more digit**  **;input is terminated by both space and new line**  **;the inputed integer will be present in dl** | **SCAN PROC**  **MOV DX, 0**  **INPUT:**  **MOV AH, 1**  **INT 21h**  **CMP AL, ' '**  **JE END**  **CMP AL, 13**  **JE END**  **PUSH AX**  **MOV AL, 10**  **MUL DL**  **MOV DL, AL**  **POP AX**  **SUB AL, '0'**  **ADD DL, AL**    **JMP INPUT**  **END:**  **RET**  **SCAN ENDP**    **;a procedure that prints an integer**  **;consisting of one or more digits**  **;the integer must be present in ax**  **PRINT PROC**    **XOR CX, CX**  **LOOP1:**  **CWD**  **MOV BX, 10**  **IDIV BX**  **PUSH DX**  **INC CX**  **CMP AX, 0**  **JG LOOP1**    **LOOP2:**  **POP DX**  **ADD DX, '0'**  **MOV AH, 2**  **INT 21h**  **LOOP LOOP2**  **RET**  **PRINT ENDP** |

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**C Solution:**