Practice Task 6

Points: 1. (3.4% of ВСК1)

Deadline: 26.02.2025, 23:59.

Submission: Through Canvas. Задания - Practice Task 6 - Attach file - Submit. If Canvas does not work, mail your task to me.

Tasks:

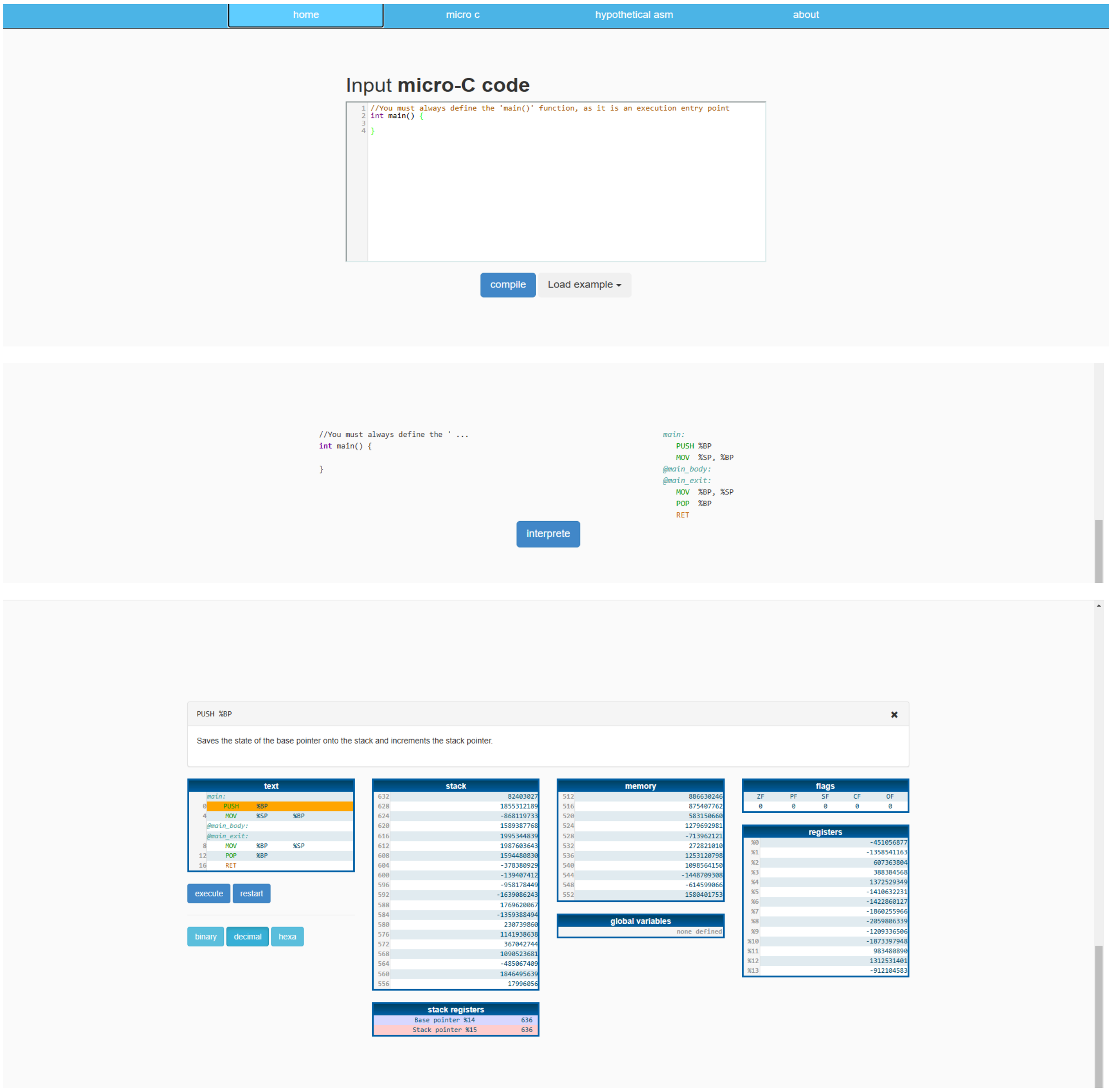
1. See the presentation named «Lesson #07 - Computer Architecture & Operating Systems - Practice».

2. Go to ctoassembly.com compiler (slide 11) and write the code provided in the presentation.

3. Study the scheme of memory allocation for code in presentation (slide 8) and memory allocation in the website.

4. Paste in file the screenshots of your code in assembler, its assembly version and memory allocation.

Example of three parts that should be in your screenshots as in presentation (should be filled with your code):



Input **micro-C code**

```
//You must always define the 'main()' function, as it is an execution entry point
int main() {

}
```

```
//You must always define the ' ...
int main() {

}
```

```
main:
   PUSH %BP
   MOV  %SP, %BP
@main_body:
@main_exit:
   MOV  %BP, %SP
   POP  %BP
   RET
```

PUSH %BP ✖

Saves the state of the base pointer onto the stack and increments the stack pointer.

```
text
    main:
 0      PUSH    %BP
 4      MOV     %SP     %BP
    @main_body:
    @main_exit:
 8      MOV     %BP     %SP
12      POP     %BP
16      RET
```

stack	
632	82403027
628	1855312189
624	-868119733
620	1589387768
616	1995344839
612	1987603643
608	1594480830
604	-378380929
600	-139407412
596	-958178449
592	-1639086243
588	1769620067
584	-1359388494
580	230739860
576	1141938638
572	367042744
568	1090523681
564	-485067409
560	1846495639
556	17996056

stack registers	
Base pointer %14	636
Stack pointer %15	636

memory	
512	886630246
516	875407762
520	583150660
524	1279692981
528	-713962121
532	272821010
536	1253120798
540	1098564150
544	-1448709308
548	-614599066
552	1580401753

global variables
none defined

ZF	PF	SF	CF	OF
0	0	0	0	0

registers	
%0	-451056877
%1	-1358541163
%2	607363804
%3	388384568
%4	1372529349
%5	-1410632231
%6	-1422860127
%7	-1860255966
%8	-2059806339
%9	-1209336506
%10	-1873397948
%11	983480890
%12	1312531401
%13	-912104583

5. Explain what the assembly part of the code does in general and what does the stack, memory, global variable, stack registers, etc. contain in the last screenshot(e. g. stack contains local variables, etc.).