

CSPB 2400 - Park - Computer Systems

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Started on

Monday, 15 April 2024, 7:16 PM

State

Finished

Completed on

Monday, 15 April 2024, 7:19 PM

Time taken

3 mins 6 secs

Marks

7.94/8.00

Grade

9.92 out of 10.00 (99%)

Question 1

Partially correct

Mark 0.94 out of 1.00

Identify the symbols listed in the symbol table of the ELF relocatable object files (.o), whether that symbol is defined or undefined, and if defined, then in which section of the corresponding ELF file that the symbol would be defined. **Note: if the symbol is not in the table or not defined in the data section, use '-' to indicate.**

main.c

```
extern int weight_sum();

int array[] = {4, 2};

int main(){
    int total;
    total = weight_sum();
    return 0;
}
```

weight_sum.c

```
extern int *array;

int *weight2;
int weight1=1;

int weight_sum(){
    int temp = 0;
    weight2 = &weight1;
    temp += weight1*arra
    temp += *weight2*arr
    return temp;
}
```

main.o

Symbol Table	Defined/Undefined	Section
weight_sum ✓	undefined	- ✓
main ✓	defined ✓	.text ✓
array ✓	defined ✓	.data

weight_sum.o

Symbol Table	Defined/Undefined	Section
weight1 ✓	defined ✓	.data
weight2 ✓	defined ✓	- ✗
weight_sum ✓	defined ✓	.text
array	undefined ✓	- ✓

weight_sum	array	main	total	weight1	weight2	temp	defined	undefined
.text	.data	.bss	.rel.text	.rel.data	-	COMMON		

Your answer is partially correct.

You have correctly selected 15.

Question 2

Correct

Mark 3.00 out of 3.00

Two object files are linked together with the command line `ld -o p main.o weight_sum.o`. Consider the following statements concerning the relocated addresses of the different object file sections. The notation `.section(object.o)` refers to the `.section` (.text, .data, etc) address of the file `object.o`.

- (i) `.data(weight_sum.o) < .text(main.o) < .text(weight_sum.o)`
- (ii) `.text(main.o) < .text(weight_sum.o) < .data(weight_sum.o)`
- (iii) `.text(main.o) < .data(main.o) < .data(weight_sum.o)`
- (iv) `.data(weight_sum.o) < .data(main.o) < .text(weight_sum.o)`
- (v) `.data(main.o) < .bss(weight_sum.o) < .bss(main.o)`

Which of these statements are correct?

Select one:

- ☐ a. Only (i) and (iv) are correct
- ☐ b. Only (ii) is correct
- ☒ c. Only (ii) and (iii) are correct
- ☐ d. Only (v) is correct
- ☐ e. Only (ii), (iii) and (v) are correct
- ☐ f. None of the above is correct



Your answer is correct.

Question 3

Correct

Mark 4.00 out of 4.00

Two .o files have been linked together with the command line `ld -o p main.o weight_sum.o`. Consider the following statements:

- (i) There are no more undefined symbols.
- (ii) The file must be dynamically linked
- (iii) The file is a relocatable object file.
- (iv) The file is an executable object file.
- (v) There might be one undefined symbol.
- (vi) The .bss section consumes no file space.

Which of these statements are correct?

Select one:

- ☐ a. Only (i) and (iv) are correct
- ☒ b. Only (i), (iv) and (vi) are correct
- ☐ c. Only (ii) is correct
- ☐ d. Only (i) and (iii) are correct
- ☐ e. Only (ii) and (v) are correct
- ☐ f. None of the above is correct



Your answer is correct.