Chapter 5 Homework

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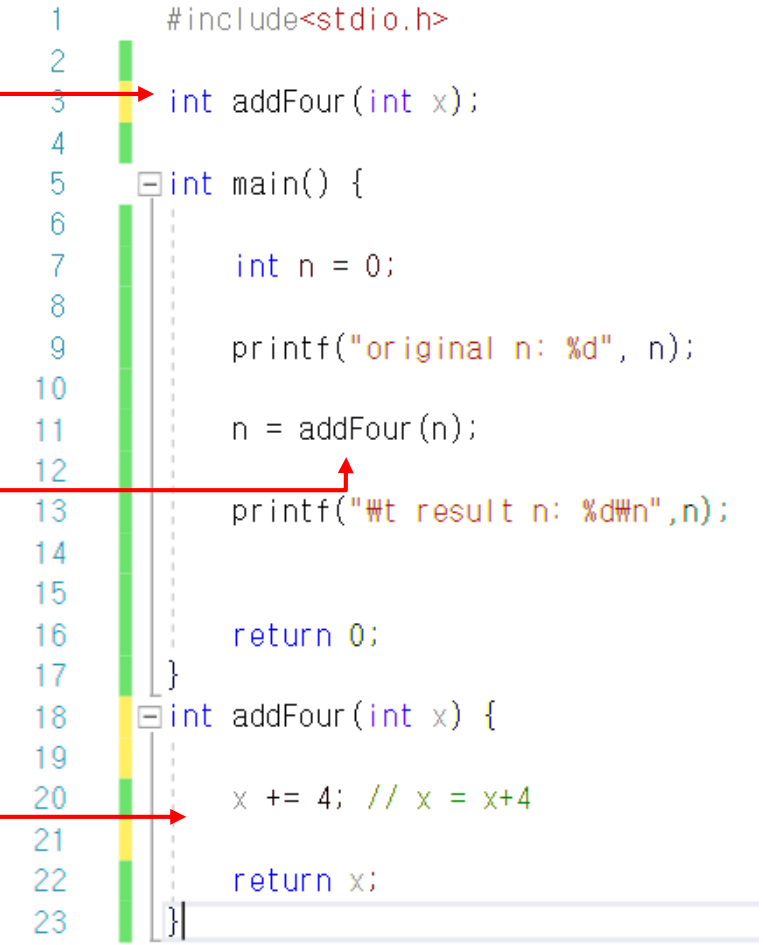
참고: Function

Function prototype

Function call

Function body



```
1   #include<stdio.h>
2
3   int addFour(int x);
4
5   int main() {
6
7       int n = 0;
8
9       printf("original n: %d", n);
10
11      n = addFour(n);
12
13      printf("₩t result n: %d₩n",n);
14
15
16      return 0;
17  }
18  int addFour(int x) {
19
20      x += 4; // x = x+4
21
22      return x;
23  }
```

Problem 1

- Define a function ‘hypotenuse’ that calculates the length of the hypotenuse of a right triangle when the other two sides are given
- The function should take two argument of type double and return the hypotenuse as a double
- Square root? Google “math.h”

```
Enter the sides of the triangle: 3 4
Hypotenuse: 5.00
계속하려면 아무 키나 누르십시오 . . .
```

```
Enter the sides of the triangle: 5.76 12.3
Hypotenuse: 13.58
계속하려면 아무 키나 누르십시오 . . .
```

Problem 2

- In number theory, a perfect number is a positive integer that is equal to the sum of its positive divisors including 1.

(For example, 6 is a perfect number because 6 = 1+2+3)

- Write a function ‘perfect’ that determines whether parameter number is a prefect number or not.
- You can choose your own range as from 1 to any number you want which is larger than 99.

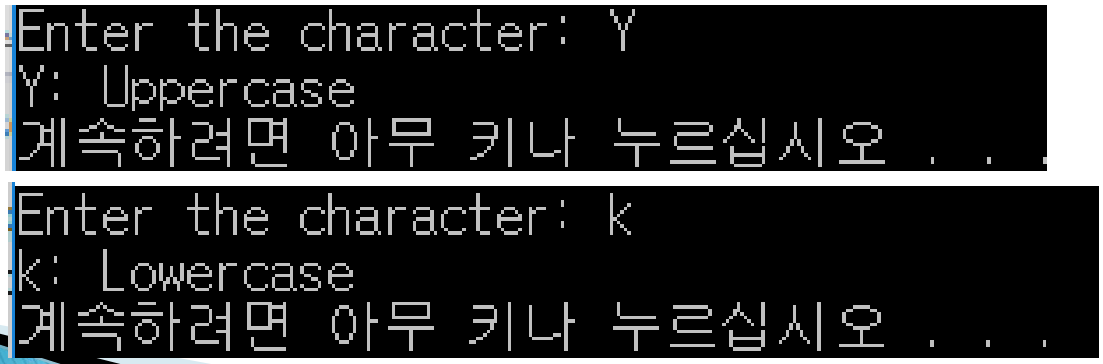
```
For the integers from 1 to 100
--------------------------------
6 is perfect
28 is perfect
계속하려면 아무 키나 누르십시오 . . .
```

```
For the integers from 1 to 1000
--------------------------------
6 is perfect
28 is perfect
496 is perfect
계속하려면 아무 키나 누르십시오 . . .
```

```
For the integers from 1 to 10000
--------------------------------
6 is perfect
28 is perfect
496 is perfect
8128 is perfect
계속하려면 아무 키나 누르십시오 . . .
```

Problem 3

- Write a program that inputs a character and passes it to function ‘ulcase’, which uses the ASCII values to determine whether the given character is in uppercase or lowercase
- The function should take a character argument and return 1 if it is an uppercase and 0 for lowercase.



ASCII TABLE

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

Problem 4

- Write a function ‘inverse2’ that takes an positive integer and returns the number with its digits reversed.

  (You need to take care about ‘0’s. Look up images below.)

- For example, given the number ‘7631’, the function should return ‘1367’, and for ‘76’, the function should return ‘67’.

```
Enter a number between 1 and 9999: 347
The number with its digits reversed is: 743
계속하려면 아무 키나 누르십시오 . . .
```

```
Enter a number between 1 and 9999: 76
The number with its digits reversed is: 67
계속하려면 아무 키나 누르십시오 . . .
```

```
Enter a number between 1 and 9999: 4
The number with its digits reversed is: 4
계속하려면 아무 키나 누르십시오 . . .
```

```
Enter a number between 1 and 9999: 8452
The number with its digits reversed is: 2548
계속하려면 아무 키나 누르십시오 . . .
```

Incorrect answer

```
Enter a number between 1 and 9999: 94
The number with its digits reversed is: 4900
계속하려면 아무 키나 누르십시오 . . .
```

Homework 04

- 제출 파일: “본인의학번_HW04.zip”

  ex) 본인의 학번이 2028123456일 경우 -> 2028123456_HW03.zip

  - 아래 내용을 하나로 압축한 zip file.

    - 1.c, …, 4.c
      각각의 문제에 대한 답안 소스파일.

    - 1.png, … , 4png
      각각의 문제에 대한 소스파일을 실행한 실행결과 캡쳐 이미지.
      (jpg 나 png 형식)

- BlackBoard(kulms.korea.ac.kr) → Assignments
- Due Date : 2018/04/10 23:59
- **형식에 맞지 않는 제출물은, 미제출로 처리됩니다.**