Programming For Engineers

Practice 01 – C Pointer

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Practice 01 Information

- Competencies that you need to know about pointers: You must be able to:
  1. Define pointers and use address operator.
  2. Display address value in hexadecimal and the distance between address.
  3. Determine byte size of data types.
  4. Use indirection in order to get the value pointed by a pointer.
  5. Perform pointer addition and subtraction.
  6. Use pointer casting in order to see individual byte inside a specific data type.
  7. Create extra memory using malloc() and calloc().
  8. Manipulate array with pointer.
  9. Manipulate string using pointer.
  10. Pass pointer argument to function and return pointer from function.

Questions

1	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int a = 7;`
	`  int *pa = &a;`
	`  printf("%d\t%d\n",*pa+2,a+2);`
	`  return 0;`
	`}`
		A)	7	7	

		B)	9	7	
		C)	9	9	
		D)	9	7	

2	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  char ch = 'A';`
	`  char *pCH = &ch;`
	`  printf("%c\t%c\n",*(pCH)+2,ch+3);`
	`  return 0;`
	`}`
		A)	A	B	

		B)	C	D	
		C)	B	C	
		D)	B	D	

Questions

3	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  float f = 3.0;`
	`  float *pF = &f;`
	`  printf("%f\t%f\n",*pF*f,*pF+f);`
	`  return 0;`
	`}`
		A)	3.000000 6.000000	

		B)	6.000000 9.000000	
		C)	9.000000 3.000000	
		D)	9.000000 6.000000	

4	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  double d = 3.14;`
	`  int a = 5;`
	`  double* pD = &d;`
	`  int* pA = &a;`
	`  printf("%d\t",sizeof(pD)-sizeof(pA));`
	`  printf("%d\n",sizeof(d)-sizeof(a));`
	`  return 0;`
	`}`
		A)	8 4	

		B)	0 4	
		C)	4 8	
		D)	8 0	

Questions

5	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  double d = 3.14;`
	`  printf("%p\t%p\n",&d,&d+3);`
	`  return 0;`
	`}`
		A)	0060FF08	0060FF10	

		B)	0060FF08	0060FF20	
		C)	0060FF08	0060FF32	
		D)	0060FF08	0060FF0C	

6	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  char ch;`
	`  char* pCH = &ch;`
	`  printf("%p\t%p\n",&ch,pCH-2);`
	`  return 0;`
	`}`
		A)	0060FF0C	0060FF09	

		B)	0060FF0A	0060FF05	
		C)	0060FF09	0060FF0B	
		D)	0060FF0B	0060FF09	

Questions

7	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int a;`
	`  int* pA = &a;`
	`  printf("%d\t%d\n",&a,pA-2);`
	`  return 0;`
	`}`
		A)	6356744 6356740	

		B)	6356742 6356744	
		C)	6356744 6356736	
		D)	6356744 6356742	

8	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  float f;`
	`  double d;`
	`  if (sizeof(d)>sizeof(f))`
	`  printf("YES\t");`
	`  else printf("NO\n");`
	`  if (sizeof(&d)>sizeof(&f))`
	`  printf("YES\t");`
	`  else printf("NO\n");`
	`  return 0;`
	`}`
		A)	YES NO	

		B)	YES YES	
		C)	NO YES	
		D)	NO NO	

Questions

9	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int a;`
	`  short s;`
	`  if (sizeof(s)>sizeof(a))`
	`  printf("YES\t");`
	`  else printf("NO\n");`
	`  if (sizeof((char)(a))>sizeof(s))`
	`  printf("YES\t");`
	`  else printf("NO\n");`
	`  return 0;`
	`}`
		A)	YES	NO	

		B)	YES	YES	
		C)	NO	YES	
		D)	NO	NO	

10	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int a = 100;`
	`  char* pA = &a;`
	`  printf("%d\t%d\t",*(&a),*(pA+1));`
	`  return 0;`
	`}`
		A)	0	100	

		B)	100	0	
		C)	100	100	
		D)	0	0	

Questions

11	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int a = 256;`
	`  char* pA = &a;`
	`  printf("%d\t%d\t",*(&a),*(pA+1));`
	`  return 0;`
	`}`
		A)	1	256	

		B)	256	1	
		C)	1	1	
		D)	256	256	

12	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  char ch[] = "ABC";`
	`  printf("%d\t%d\t%d\n",ch[0],*ch+1,*(ch+3));`
	`  return 0;`
	`}`
		A)	65	66	66

		B)	65	65	66
		C)	65	66	67
		D)	65	66	0

Questions

13	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int i;`
	`  int *a = malloc(5*sizeof(int));`
	`  for (i=0;i<5;i++)`
	`  *(a+i)=2*i;`
	`  printf("%d\t%d\n",*(a+3),a[2]);`
	`  return 0;`
	`}`
		A)	2 4	

		B)	4 6	
		C)	6 8	
		D)	6 4	

14	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  int i;`
	`  char *ch = calloc(10,sizeof(char));`
	`  for (i=0;i<10;i++)`
	`  *(ch+i)=65+i;`
	`  printf("%c\t%c\n",*(ch+3),ch[2]);`
	`  return 0;`
	`}`
		A)	C B	

		B)	D C	
		C)	C D	
		D)	E D	

Questions

15	What is the output on the console screen?
	`#include <stdio.h>`
	`int main()`
	`{`
	`  char ch1[10];`
	`  char ch2[10];`
	`  strcpy(ch1,"ABC");`
	`  strcpy(ch2,"DEFG");`
	`  printf("%s\t",strcat(ch2,ch1));`
	`  printf("%d\n",strlen(ch2));`
	`  return 0;`
	`}`
		A)	ABCDEFG 7	

		B)	DEFGABC 4	
		C)	ABCDEFG 3	
		D)	DEFGABC 7	

Questions

16

What is the output on the console screen?

```
#include <stdio.h>
int* add(int*,int*);
int main()
{
    int a = 2;
    int b = -3;
    int* sum;
    sum = add(&a,&b);
    printf("%d\n",*sum*5);
    return 0;
}
int* add(int* a,int* b)
{
    int* sum;
    printf("%d\t%d\n",*a,*b);
    *sum = (*a+*b);
    return sum;
}
```

A)	2 -3 -1	
B)	2 -3 -5	
C)	-3 2 -5	
D)	2 -3 -1	

Questions

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What is the output on the console screen?

```
#include <stdio.h>
void circle(float*);
int main()
{
    int i;
    float f[3];
    f[0]=2;
    circle(f);
    for (i=0;i<3;i++)
        printf("%d\t",(int)f[i]);
    return 0;
}
void circle(float* f)
{
    f[1]=3**f**f;
    f[2]=2*5**f;
    return;
}
```

A)	2.0	8.0	10.0	
B)	3	6	10	
C)	2	12	20	
D)	3.0	6.0	20.0	