

PHP
CHINA



PHP基本语法

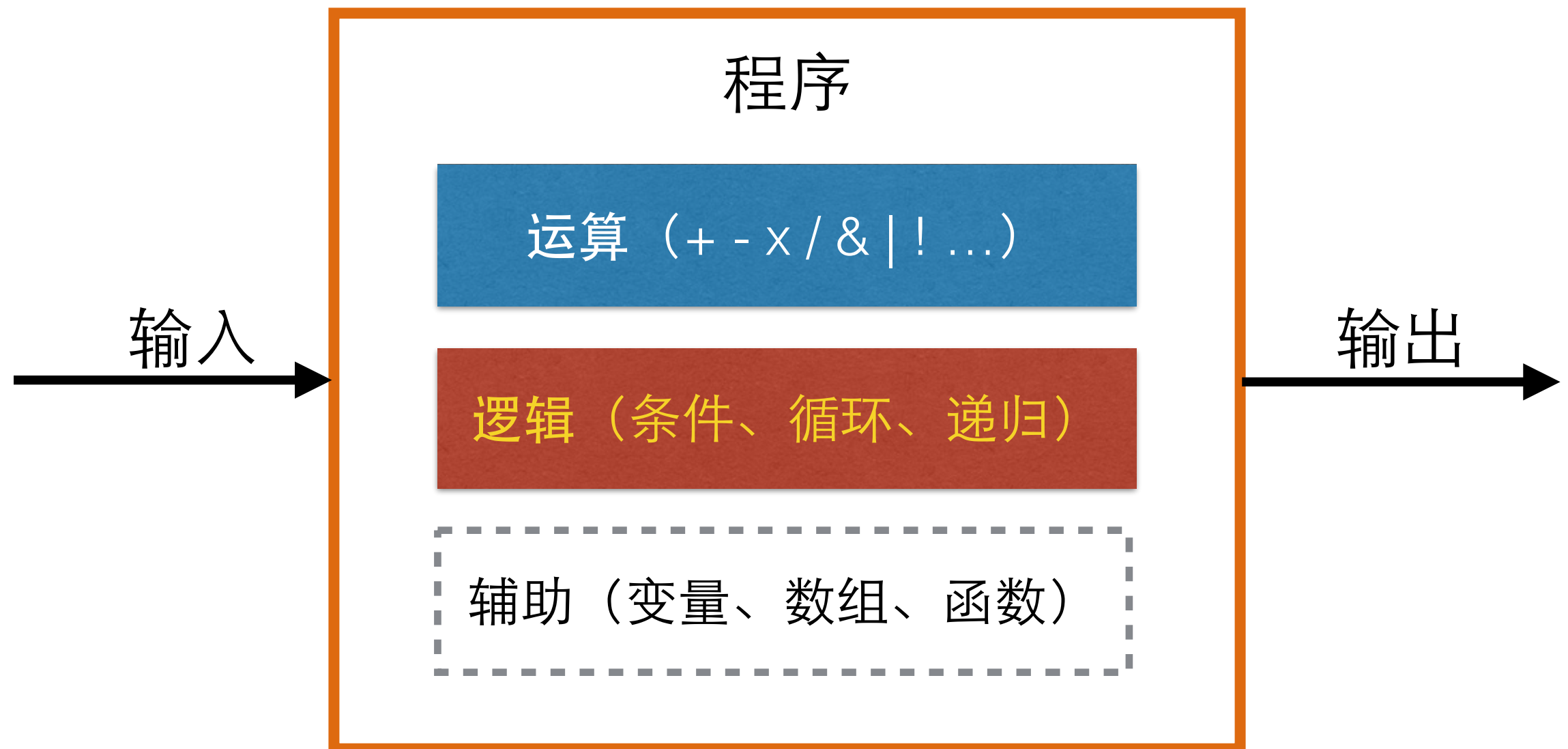
——条件、循环、函数

PHPCHINA!

HAPPY PHPING
PHPCHINA.COM

杨亮

程序的基本结构



小测验

用你熟悉的程序找出
1~1000中的所有质数

我们直接看代码好了

**if
else
elseif**

```
1 <?php
2 if( $totalqty == 0 )
3     echo 'You did not order anything on the previous page!<br />';
4
5 if ($totalqty == 0) {
6     echo '<p style="color:red">';
7     echo 'You did not order anything on the previous page!';
8     echo '</p>';
9 }
10
11 if ($totalqty == 0) {
12     echo "You did not order anything on the previous page!<br />";
13 } else {
14     echo $tireqty." tires<br />";
15     echo $oilqty." bottles of oil<br />";
16     echo $sparkqty." spark plugs<br />";
17 }
18
19 if ($tireqty < 10) {
20     $discount = 0;
21 } elseif (($tireqty >= 10) && ($tireqty <= 49)) {
22     $discount = 5;
23 } elseif (($tireqty >= 50) && ($tireqty <= 99)) {
24     $discount = 10;
25 } elseif ($tireqty >= 100) {
26     $discount = 15;
27 }
```

switch

```
29 if ($find == "a") {
30     echo "<p>Regular customer.</p>";
31 } elseif ($find == "b") {
32     echo "<p>Customer referred by TV advert.</p>";
33 } elseif ($find == "c") {
34     echo "<p>Customer referred by phone directory.</p>";
35 } elseif ($find == "d") {
36     echo "<p>Customer referred by word of mouth.</p>";
37 } else {
38     echo "<p>We do not know how this customer found us.</p>";
39 }
40
41 switch($find) {
42     case "a" :
43         echo "<p>Regular customer.</p>";
44         break;
45     case "b" :
46         echo "<p>Customer referred by TV advert.</p>";
47         break;
48     case "c" :
49         echo "<p>Customer referred by phone directory.</p>";
50         break;
51     case "d" :
52         echo "<p>Customer referred by word of mouth.</p>";
53         break;
54     default :
55         echo "<p>We do not know how this customer found us.</p>";
56         break;
57 }
58 ?>
```

1	<html>	Distance	Cost
2	<body>	50	5
3	<table border="0" cellpadding="3">	100	10
4	<tr>	150	15
5	<td bgcolor="#CCCCCC" align="center">Distance</td>	200	20
6	<td bgcolor="#CCCCCC" align="center">Cost</td>	250	25
7	</tr>		
8	<tr>		
9	<td align="right">50</td>		
10	<td align="right">5</td>		
11	</tr>		
12	<tr>		
13	<td align="right">100</td>		
14	<td align="right">10</td>		
15	</tr>		
16	<tr>		
17	<td align="right">150</td>		
18	<td align="right">15</td>		
19	</tr>		
20	<tr>		
21	<td align="right">200</td>		
22	<td align="right">20</td>		
23	</tr>		
24	<tr>		
25	<td align="right">250</td>		
26	<td align="right">25</td>		
27	</tr>		
28	</table>		
29	</body>		
30	</html>		

```

1 <html>
2 <body>
3 <table border="0" cellpadding="3">
4     <tr>
5         <td bgcolor="#CCCCCC" align="center">Distance</td>
6         <td bgcolor="#CCCCCC" align="center">Cost</td>
7     </tr>

```

Distance	Cost
50	5
100	10
150	15
200	20
250	25

```

8 <?php
9 $distance = 50;
10 while ($distance <= 250) {
11     echo "<tr>
12         <td align=\"right\">".$distance."</td>
13         <td align=\"right\">".($distance / 10)."</td> </tr>
14     $distance += 50;
15 }
16 ?>

```

while

```

17 </table>
18 </body>
19 </html>

```

```

9 for ($distance = 50; $distance <= 250; $distance += 50) {
10     echo "<tr>
11         <td align=\"right\">".$distance."</td>
12         <td align=\"right\">".($distance / 10)."</td> </tr>\n";
13 }

```

for

数组与循环

```
2 $prices = array('Tires'=>100, 'Oil'=>10, 'Spark  
3  
4 foreach ($prices as $key => $value) {  
5     echo $key." — ".$value."<br />";  
6 }  
7  
8 while ($element = each($prices)) {  
9     echo $element['key'];  
10    echo " — ";  
11    echo $element['value'];  
12    echo "<br />";  
13 }  
14  
15 reset($prices);  
16 while (list($product, $price) = each($prices)) {  
17     echo "$product — $price<br />";  
18 }
```

软件工程中的代码重用

- 因为我们都懒（做过的事情不想再做第二次）
- 降低开发成本
- 增加代码的可靠性
- 增强程序的一致性

PHP中的代码重用

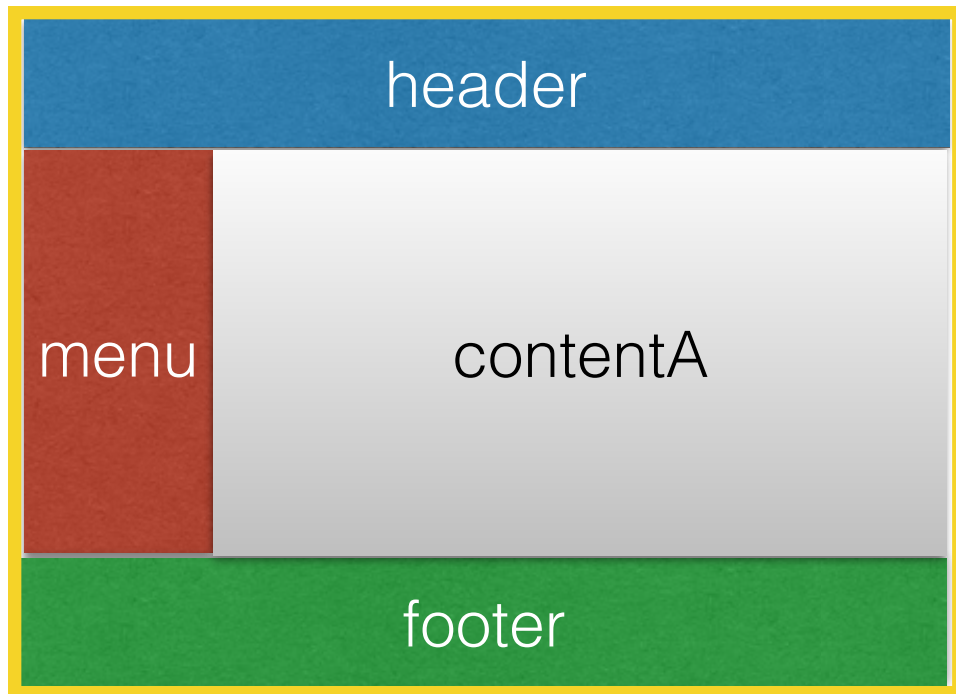
- 将其他文件中的html或者php代码引入到本文件
- require()与include();
- require_once()与include_once();
- 可以引入其他的函数库，或者代码片段

```
1 <?php
2 //reusable.php
3 echo 'Here is a very simple PHP statement.<br />';
4 ?>
```

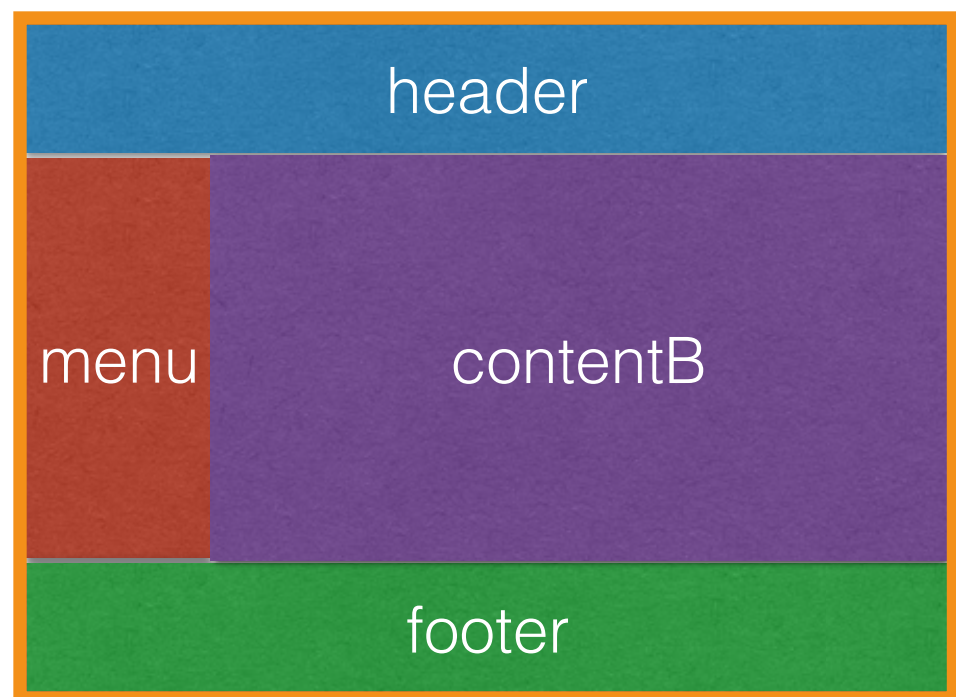
```
1 <?php
2 //use.php
3 echo 'This is the main file.<br />';
4 require( 'reusable.php' );
5 echo 'The script will end now.<br />';
6 ?>
```

This is the main file.
Here is a very simple PHP statement.
The script will end now.

PHP实现网页模板



```
require('header.php');  
require('menu.php');  
contentA  
require('footer.php');
```



```
require('header.php');  
require('menu.php');  
contentB  
require('footer.php');
```

header.php

footer.php

menu
.php

找出1~1000中的所有质数

```
1 <?php
```

```
2 for ($i=2; $i<1000; $i++) {
```

```
3     for ($j=2; $j<sqrt($i); $j++) {
```

```
4         if (doubleval($i)%doubleval($j) == 0 )
```

```
5             break;
```

```
6     }
```

```
7 }
```

判断\$i是否为质数

```
8 if ($j > sqrt($i)) {
```

```
9     echo $i.'<br>';
```

```
10 }
```

```
11 }
```

```
12 ?>
```

```
1 <?php
```

```
2 for ($i=2; $i<1000; $i++)
```

```
3     if (is_zhishu($i)) {
```

```
4         echo $i.'<br>';
```

```
5     }
```

```
6 }
```

```
7 ?>
```


DRY: Don't Repeat Yourself

~~Ctrl-C & Ctrl-V~~

良好的代码风格

```

1  #include <stdio.h>
2  #include <string.h>
3  int N,temp,T,int d[4]={1,2,4,8},int mo[4][2]={0,-1},{-1,0},{0,1},{1,0}},int map[100][100],
4  void reset(){memset(map,0,sizeof(map)),int i,for (i=0;i<N*2,i++) map[i][i]=1,/**/ for(i=0,
5  i<N*2 ,i++)map[2*N+1] [i]=1,}void print(){int i,j;if(T==1) printf("\n")
6  printf ("Case %d:\n\n",T),for (i=1,i<=4*N+3,i++) printf (" " ), printf("\n"),
7  for(i=2,i<=2*N,i++) { if(i%1){printf(" " ),for(j=2,j<= 2*N, j+=2){ printf(" " ),
8  if(map [i-1][j]& d[3]) printf("|"), else printf(" " ), printf ( " " ),,},printf
9  ("*\n" ),,printf(" " ),,for(j=1,j<=N,j++) printf(/**/ " H " ),, printf ("*\n"),,
10 printf (" " ),for(j=2, j<=2*N,j+=2){printf(" " ),if (map[i+1][j]&d[1]) printf (
11 "| " ), else printf(" " ),,printf(" " ),,},printf("*\n" ),,},else { printf ( " *H"),,},
12 for(j=2,j<=2*N, j+=2){if (map [i] [j] &d[0]) printf (" " ),
13 "-", , else printf(" " ),,printf ("O"),if (map [i] [j] &d[2]) printf(
14 "-", , else printf(" " ),,printf ("N"), ,printf ("*\n"),,},for(i=1,i <=4*N+3
15 ,i++) printf ( " " ), printf("\n"),}int main(){ T=0,while (1){int i ,j,scanf
16 ("%d",&N),if(!N)break, reset(),T++,for (i=2,i<= 2*N,i+=2)for(j=2, j<= 2*N,
17 j+=2){ scanf("%d",&temp ),if(temp==1) {map[i][j]= 3,map [i][j-1]= map[i][j+1]
18 }-1, , if(temp==1){map [i][j]=10, , map [i-1][j] = map[i+1][j]-1, ,},for(i=2,i
19 <=2*N, i+=2)for(j=2,j<= 2*N,j+=2){ if ( map [i] [j] ) continue, int now=0,k,
20 for(k=0,k<4,k++) { int dy=i+mo [k][0], int dx = -j+mo[k][1],if(
21 !map[dy][dx])now=now+d[k],if((now&3)--3)map[i][j]=3,else if((now&9)--9)map[i][j]=9,else if
22 ((now&6)--6)map[i][j]=6,else if((now&12)--12)map[i][j]=12,for (k=0,k<4,k++)if(map[i][j]&d[k]
23 )map[i+mo[k][0]][j+mo[k][1]]+=1,}print(),,},/**/
24

```

```

-
= \
""if!
1:"e,V=100
0,(0j-1)**-.2;
v,S=.5/ V.real,
[(0,0,4 *e,4*e*
V)];w=1 -v"def!
E(T,A, B,C):P
,Q,R=B*w+ A*v,B*w+C
*v,A*w+B*v;retur n[(1,Q,C,A),(1,P
,Q,B),(0,Q,P,A)]*T+[(0,C ,R,B),(1,R,C,A)]*(1-T)"f
or!i!in![_:11]:S =sum([E (*x)for !x!in!S],[!])"imp
ortcair o!as!O; s=0.Ima geSurface
e(1,e,e);c=0.Con text(s); M,L,G=c.
move_to ,c.line_to,c.s et_sour
ce_rgb a"def!z(f,a) :f(-a.
imag,a. real-e-e)"for!T,A,B,C!in[i !for!i!
in!S!if!i[""";exec(reduce(lambda x,i:x.replace(chr
(i),"\\n "[34-i:]), range( 35),_+""0]]):z(M,A
);z(L,B);z (L,C); c.close_pa
th()*G (.4,.3 ,1);c.
paint( );G(.7 ,.7,1)
;c.fil l()"fo r!i!in
!range (9):"! g=1-i/
8;d=i/ 4*g;G(d,d,d, 1-g*.8
)"!def !y(f,a):z(f,a+(1+2j)*( 1j*(i
/2.))*g)"!for!T,A,B,C!in!S:y(M,C);y(L,A);y(M
,A);y(L,B)"!c.st roke()"s.write_t
o_png('pen rose.png')
""")

```

```

1)[]- map[i][j]-1  
+1)[]-1; }for(i=2;i  
ntinue; int now=0,k;  
-j-mo[k][1],if(  
--9)map[i][j]-9,else if  
<4,k++)if(map[i][j]&d[k  
..._..._..._..._..._...  
/*  
+  
+  
+  
[ >i>n[t  
*/ #include<stdio.h>  
/*2w0,lm2,]_<n+a mto>r>i>=>(['Onl'0)l;  
*/int/**/main(int/**/n,char**m){FILE*p,*q:int A,k,a,r,i/*  
#uinndcelfu_dset<rsitcdti_oa.nhs>i/_*/;char*d="P%" "d\n%d\40%d"/**/  
"\n%d\n\00wb+",b[1024],y[]="yuriyurarararayuruyuri*daijiken**akkari~n**"  
"/y*u*k/riin<ty(uyr)g,aur,arr[alr2a82*y2*/u*r(uyu)ri0cyurhiyua**rrar+arayra*="  
"yuruyurwiuryurara rariayuruyuriyuriyu>rarararayuruy9uriyu3riyurar_aBrMaPrOaWy`?"  
*]/f)`hvroai<dp/f*i*s/<ii(f)a{tpguat<cahfaurh(tuf)a:f}vivnttf/g*`*w/jmaati`ni("/**  
*/"i+k[>b+i>+b++>l[r];int/**/u;for(i=0;i<101;i++)y[i*2]^="hktrvg~dmG^coa+%squ#l2"  
":(wn`ll))v?wM353{/Y:lgcGp`vedllwudvOK`cct~{|ju {stkjalor(stwvne`gt`"yogYURUYURI"[  
i]^y[i*2+1]^4:/!*/p=(n>l&&(m[1][0]^-'||m[1][1]^='\'0'))?fopen(m[1],y+298):stdin;  
/y/riynrt~(`w`)],]c+h+a+r+***[n])+>f+o<r<(-m)^<2<5<64;}-](m+yry[rm*])/[*  
*/q=(n<3|!(m[2][0]^-'||m[2][1]))?stdout /*}{ */[:fopen(m[2],d+14);if(!p|/*  
"]<<*->y++>u>>+r >+u+++y>-u---r>+t+t+t+t "<>< ;[->m-.>a-. -i. +t+n.>[(w)*!/q/**/)  
return+printf("Can " "not\x20open\40%s\40" "" "for\40%sing\n",m[!p?1:2],!p?/*  
o=82]5<<+(+3+1+&. (+ m +-+1.)<)<|<.6>4>+(> m- &-1.9-2-)-|-|.28>-w?-m.:>([28+  
*/"read":"writ");for ( a=k=u= 0;y[u]; u=2 +u){y[k++ ]=y[u];}if((a=fread(b,1,1024/*  
,mY/R*Y`R*/ ,p/*U*/)/ R*/ )>*/U{ /* 2&& b/*Y*/[0]/*U*/!=`P' &&4==/*"y*r/y)r\}  
*/sscanf(b,d,&k,&A,& i, &r)&& ! (k-6&&k -5)&&r==255){u=A;if(n>3){/*  
]&<1<6<?<m.-+1>3> ++ .1>3+++ . -m-) -;.u+=+.1<0< <; f<o<r<(.;<([m(=)/8*/  
u++;i++;}fprintf (q, d,k, u >>1,i>>1,r);u = k-5?8:4;k=3;}else  
/*]>*/{(u)=/*{ p> >u >t>-]s >+>(. yryr*/+( n+14>17)?8/4:8*5/  
4;}for(r=i=0 ; ;){u*=6;u+= (n>3?1:0);if (y[u]&01)fputc(/*  
<g-e<t.c>h.a r -(-).>8<1. >;+i.( <)< <)+{+i.f>([180*/1*  
(r),q);if(y[u ]&16)k=A;if (y[u]&2)k--;if(i/*  
("`w`NAMORI; { I*/==a/*")*)/{ /**/i=a=(u)*11  
&255;if(l&&0>= (a= fread(b,1,1024,p))&&  
")])i>(w)-;} { /i-f-(m-M1-0.)<{"  
[ 8]==59/* */ )break;i=0;}r=b[i++]  
;u+=(/**>> *. .</<<<<[[]]**/+8&*  
(y+u))?10- r?4:2):(y[u] &4)?(k?2:4):2;u=y[u/*  
49;7i\<(w)/;}< y)ru\=*ri[ ,mc[o;n]trientuu ren (  
*/)-(int)' ,;}< y)fclose( p);k= +fclose( q);  
/*] <*.na/m*o{ri{ d;~w~;}) ^~^)  
"/ return k- -1+ /*' '-*/  
( -/*}/ /*/0x01 ); { ( )]  
: /*~w~/ :]  


```

代码的可读性

为什么自己写有函数

- 代码的可读性
- 代码的可重用性
- 实现功能的模块化
- 实现递归调用
- 使变量名不至于太长（作用域）



PHP中的函数

实参

```
$res = my_function($val1, $val2);
```

函数调用

函数名

关键字

```
function my_function($param1, $param2) {
```

形参

```
//function implementation
```

```
return $result;
```

```
}
```

函数定义

返回值


```

2 for ($i=2; $i<1000; $i++) {
3     for ($j=2; $j<sqrt($i); $j++) {
4         if (doubleval($i)%doubleval($j) == 0 )
5             break;
6     }
7 }
8 if ($j > sqrt($i)) {
9     echo $i.'<br>';
10 }
11 }

```

```

1 <?php
2 for ($i=2; $i<1000; $i++)
3     if (is_zhishu($i)) {
4         echo $i.'<br>';
5     }
6 }
7 ?>

```

```

2 function is_zhishu($num) {
3     for ($j=2; $j<sqrt($num); $j++) {
4         if (doubleval($num)%doubleval($j) == 0 )
5             break;
6     }
7 }
8 if ($j > sqrt($num)) {
9     return 1;
10 }else{
11     return 0;
12 }
13 }

```

缺省参数值

在函数定义时指定缺省参数值

```
function my_function($param1=default1, $param2=default2) {  
    //function implementation  
    return $result;  
}
```

```
$res = my_function($val1, $val2);    //$param1=$val1, $param2=$val2
```

```
$res = my_function($val1); //$param1=$val1, $param2=default2
```

```
$res = my_function(); //$param1=default1, $param2=default2
```

缺省参数按照重要性排序，越可以自动确定的越放到后面

可变参数函数

- 所有输入值求和
- 所有输入值的最大公约数（最小公倍数）
- `fun_num_args()`与
`fun_get_args()`;

```
1 <?php
2 function var_args() {
3     echo "Number of parameters:";
4     echo func_num_args();
5     echo "<br />";
6     $args = func_get_args();
7     foreach ($args as $arg) {
8         echo $arg."<br />";
9     }
10 }
11 ?>
```

变量作用域

- 局部变量（函数中定义），从定义处到函数结束
- 全局变量（非函数中定义），从定义出到文件尾，但不包括其中的函数
- 超全局变量（下节课会讲到），所以地方
- require和include都不影响变量作用域，只是起到了将代码片段组合的作用
- 局部变量加上关键字global，可令其变为全局变量，即在函数外也可以访问

通过函数实现递归

- 斐波那契数列
- $x(1)=1$;
- $x(2)=1$;
- $X(n)=X(n-1)+x(n-2)$, $n>2$

```
2 $n = 100;  
3 $x=array();  
4 $x[1]=1;  
5 $x[2]=1;  
6 for($i=3; $i<=$n; $i++) {  
7     $x[$i] = $x[$i-1] + $x[$i-2];  
8     echo "x($i)=". $x[$i]. '<br>';  
9 }
```

```
2 function my_fabo($num) {  
3     if ($num == 1) {  
4         return 1;  
5     }elseif ($num == 2) {  
6         return 1;  
7     }else{  
8         return my_fabo($num-1) + my_fabo($num-2);  
9     }  
10 }  
11  
12 $n = 10;  
13 echo "x($n)=".my_fabo($n);
```


作业一

用递归函数实现汉诺塔如何移动

作业二

用函数实现矩阵的加减乘除转置操作