

# Algorithm2e宏包演示

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## 1. If语句及算法模板样例（左侧源代码，右侧样例）：

```
\begin{algorithm}[H]
\KwIn{$x$, $y$}
\KwOut{$sign$}
\BlankLine
\caption{$div(x,y)$} \label{Alg-div}
\If{$rm(x,y)=0$}{
    $sign=1$;
}
\Else{
    $sign=0$;
}
\Return{$sign$};
\end{algorithm}
```

---

**Algorithm 1:**  $div(x, y)$ 

---

**Input:**  $x, y$

**Output:**  $sign$

```
1 if  $rm(x, y) = 0$  then
2   |  $sign = 1$ ;
3 else
4   |  $sign = 0$ ;
5 return  $sign$ ;
```

---

## 2. If-ElseIf-Else语句样例：

```
\begin{algorithm}[H]
\KwIn{$score$}
\KwOut{Letter Grade}
\BlankLine
\caption{LetterGrade($score$)}
\label{Alg-Score}
\If{$score \ge 90$}{
    \textbf{output}  $A$ ;
}
\uElseIf{$80 \le score < 90$}{
    \textbf{output}  $B$ ;
}
\Else{
    \textbf{output}  $P$ ;
}
\end{algorithm}
```

---

**Algorithm 2:** LetterGrade( $score$ )

---

**Input:**  $score$

**Output:** Letter Grade

```
1 if  $score \ge 90$  then
2   | output  $A$ ;
3 else if  $80 \le score < 90$  then
4   | output  $B$ ;
5 else
6   | output  $P$ ;
```

---

## 3. While语句样例：

```
\begin{algorithm}[H]
\KwIn{$x$, $y$}
\KwOut{$x$}
\BlankLine
\While{$x \ge y$}{
     $x -= y$ ;
}
\textbf{output}  $x$ ;
\end{algorithm}
```

---

**Algorithm 3:**  $rm(x, y)$ 

---

**Input:**  $x, y$

**Output:**  $x$

```
1 while  $x \ge y$  do
2   |  $x -= y$ ;
3 output  $x$ ;
```

---

#### 4. For语句样例:

```
\begin{algorithm}[H]
\KwIn{$n \in \mathbb{N}$}
\KwOut{The sum from 1 to $n$}
\BlankLine
\caption{Sum($n$)} \label{Alg-Sum}
$sum=0$;
\For{$temp=0$ to $n$}{
    $sum=sum+temp$;
}
\textbf{output} $sum$;
\end{algorithm}
```

---

**Algorithm 4:** Sum( $n$ )

---

**Input:**  $n \in \mathbb{N}$

**Output:** The sum from 1 to  $n$

```
1  $sum := 0$ ;
2 for  $temp = 0$  to  $n$  do
3    $sum = sum + temp$ ;
4 output  $sum$ ;
```

---

#### 5. Repeat-Until语句样例:

```
\begin{algorithm}[H]
\KwIn{$a, b \in \mathbb{N}$}
\KwOut{Greatest common divide of $a$, $b$}
\BlankLine
\caption{GCD($a$, $b$)} \label{Alg-GCD}

\Repeat{$gcd=0$}{
    $gcd = a \bmod b$;
    $a=b$;
    $b=gcd$;
}
\textbf{output} $gcd$;
\end{algorithm}
```

---

**Algorithm 5:** GCD( $a, b$ )

---

**Input:**  $a, b \in \mathbb{N}$

**Output:** Greatest common  
divide of  $a, b$

```
1 repeat
2    $gcd = a \bmod b$ ;
3    $a = b$ ;
4    $b = gcd$ ;
5 until  $gcd = 0$ ;
6 output  $gcd$ ;
```

---

#### 6. Case语句样例:

```
\begin{algorithm}[H]
\KwIn{$person$}
\KwOut{$person$'s gender}
\BlankLine
\caption{Gender} \label{Alg-Gender}
\Switch{$person$}{
\Case{$person.gender=male$}{
\textbf{output} Male;
}
\Case{$person.gender=female$}{
\textbf{output} Female;
}
\Other{
\textbf{output} Unknown;
}
}
\end{algorithm}
```

---

**Algorithm 6:** Gender

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**Input:**  $person$

**Output:**  $person$ 's gender

```
1 switch  $person$  do
2   case  $person.gender = male$ 
3      $\textbf{output}$  Male;
4   case  $person.gender = female$ 
5      $\textbf{output}$  Female;
6   otherwise
7      $\textbf{output}$  Unknown;
```

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更多样例和解释请参考AlgorithmPackage.pdf帮助文档。