```
/*****************主教材各章例题SAS程序************/
/***************第七章**************/

/***************例7-1，计算可信区间**************/
data a7_1;
  n=36;
  mean=6.76;
  sd=1.36;
  t=2.030;
  cl=mean-t*sd/sqrt(n);
  cu=mean+t*sd/sqrt(n);
proc print;
run;

/***************例7-2，计算可信区间**************/
data a7_2;
  n=90;
  mean=172.2;
  sd=4.5;
  z=1.96;
  cl=mean-z*sd/sqrt(n);
  cu=mean+z*sd/sqrt(n);
proc print;
run;

/***************例7-3，单样本t检验**************/
data a7_3;
  n=36;
  mean=6.76;
  sd=1.36;
  t=2.030;
  mean_p=4;
  df=n-1;
  t=(mean-mean_p)/(sd/sqrt(n));
  p=(1-probt(abs(t),df))*2;
proc print;
  var t p;
run;

/**********例7-4，配对样本t检验及差值的可信区间******/
data a7_4;
  input d@@;
  cards;
3.48
7.41
7.48
9.42
8.25
3.35
6.95
7.41
6.35
7.41
```

```
8.58
;
proc means t prt clm;
  var d;
run;

/*************例7-5，配对样本t检验，见例7-4******/

/*************例7-6，两总体均数差的可信区间******/
data a7_6;;
  n1=44;
  mean1=27.2;
  std1=0.9;
  n2=48;
  mean2=27.3;
  std2=0.8;
  mean_d=mean2-mean1;
  td=1.987;
  se_d=sqrt(((n1-1)*std1**2+(n2-1)*std2**2)/(n1+n2-2)*(1/n1+1/n2));
  cld=mean_d-td*se_d;
  cud=mean_d+td*se_d;
proc print;
run;

/*************例7-7，方差不齐时两总体均数差的可信区间******/
data a7_7;;
  n1=10;
  mean1=2.9;
  std1=0.3;
  n2=29;
  mean2=2.8;
  std2=0.1;
  mean_d=mean1-mean2;
  td=2.228;
  se_d=sqrt(std1**2/n1+std2**2/n2);
  cld=mean_d-td*se_d;
  cud=mean_d+td*se_d;
proc print;
run;

/****例7-8，两独立样本t检验****************/
data a7_8;
  input group wt@@;
  cards;
1   134
1   146
1   104
1   119
1   124
1   161
1   107
1   83
1   113
```

```
1   129
1   97
1   123
2   70
2   118
2   101
2   85
2   107
2   132
2   94
;
proc ttest;
  class group;
  var wt;
run;

/****例7-9，两独立样本t'检验****************/
data a7_9;
  n1=25;
  mean1=0.345;
  std1=0.053;
  n2=15;
  mean2=0.362;
  std2=0.083;
  df=21;
  mean_d=mean2-mean1;
  td=0.206;
  t=mean_d/sqrt(std1**2/n1+std2**2/n2);
  p=(1-probt(abs(t),df))*2;
proc print;
run;

/****例7-10，两独立样本t'检验****************/
data a7_10;
  n1=10;
  mean1=2.9;
  std1=0.3;
  n2=29;
  mean2=2.8;
  std2=0.1;
  df1=n1-1;
  df2=n2-1;
  f=std1**2/std2**2;
  p=(1-probf(abs(f),df1,df2))*2;
proc print;
run;

/****例7-13，总体率的可信区间，正态近似法******/
data a7_13;
  n=166;
  x=41;
  p=x/n;
  sp=sqrt(p*(1-p)/n);
  z=1.96;
```

```
  cl=p-z*sp;
  cu=p+z*sp;
proc print;
run;

/****例7-14，总体率的可信区间，校正正态近似法******/
data a7_14;
  n=8;
  x=5;
  p=x/n;
  p_a=(x+2)/(n+4);
  sp=sqrt(p_a*(1-p_a)/n);
  z=1.96;
  cl=p_a-z*sp;
  cu=p_a+z*sp;
proc print;
run;

/****例7-15，单样本率与总体率的假设检验，单侧检验******/
data a7_15;
  n=500;
  x=16;
  p=x/n;
  p_p=0.0043;
  p_1=probbnml(p_p,500,15);
  p_2=1-p_1;
proc print;
run;

/****例7-16，单样本率与总体率的假设检验，单侧检验，正态近似法******/
data a7_16;
  n=3909;
  x=1121;
  p=x/n;
  p_p=0.0739;
  z=(p-p_p)/(sqrt(p_p*(1-p_p)/n));
  p_value=1-probnorm(abs(z));
proc print;
run;

/****例7-17，两总体率差的可信区间，正态近似法******/
data a7_17;
  n1=3909;
  n2=1430;
  p1=0.2868;
  p2=0.2189;
  sp_d=sqrt(p1*(1-p1)/n1+p2*(1-p2)/n2);
  p_d=p1-p2;
  z=1.96;
  cl=p_d-z*sp_d;
  cu=p_d+z*sp_d;
proc print;
run;
```

```
/****例7-18，两总体率差的可信区间，校正正态近似法******/
data a7_18;
  n1=4;
  n2=3;
  x1=3;
  x2=2;
  p1=(x1+1)/(n1+2);
  p2=(x2+1)/(n2+2);
  sp_d=sqrt(p1*(1-p1)/(n1+2)+p2*(1-p2)/(n2+2));
  p_d=p1-p2;
  z=1.96;
  cl=p_d-z*sp_d;
  cu=p_d+z*sp_d;
proc print;
run;

/****例7-19，两样本率比较******/
data a7_19;
  n1=3909;
  n2=1430;
  p1=0.2868;
  p2=0.2189;
  sp_d=sqrt(p1*(1-p1)/n1+p2*(1-p2)/n2);
  p_d=p1-p2;
  z=p_d/sp_d;
  p_value=1-probnorm(abs(z));
proc print;
run;
```