

```
1. /*****
2.  * conditions1.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Tells user if his or her input is positive or negative (somewhat
8.  * innacurately).
9.  *
10. * Demonstrates use of if-else construct.
11. *****/
12.
13. #include <cs50.h>
14. #include <stdio.h>
15.
16. int
17. main(void)
18. {
19.     // ask user for an integer
20.     printf("I'd like an integer please: ");
21.     int n = GetInt();
22.
23.     // analyze user's input (somewhat inaccurately)
24.     if (n > 0)
25.         printf("You picked a positive number!\n");
26.     else
27.         printf("You picked a negative number!\n");
28. }
```

```
1. /*****
2.  * conditions2.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Tells user if his or her input is positive or negative.
8.  *
9.  * Demonstrates use of if-else if-else construct.
10. *****/
11.
12. #include <cs50.h>
13. #include <stdio.h>
14.
15. int
16. main(void)
17. {
18.     // ask user for an integer
19.     printf("I'd like an integer please: ");
20.     int n = GetInt();
21.
22.     // analyze user's input
23.     if (n > 0)
24.         printf("You picked a positive number!\n");
25.     else if (n == 0)
26.         printf("You picked zero!\n");
27.     else
28.         printf("You picked a negative number!\n");
29. }
```

```
1. /*****
2.  * hail.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Says hello to the world.
8.  *
9.  * Demonstrates use of printf.
10. *****/
11.
12. #include <stdio.h>
13.
14. int
15. main(void)
16. {
17.     printf("O hai, world!\n");
18. }
```

```
1. /*****
2.  * hai2.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Says hello to just David.
8.  *
9.  * Demonstrates use of CS50's library.
10. *****/
11.
12. #include <cs50.h>
13. #include <stdio.h>
14.
15. int
16. main(void)
17. {
18.     string name = "David";
19.     printf("O hai, %s!\n", name);
20. }
```

```
1. /*****
2.  * hai3.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Says hello to whomever.
8.  *
9.  * Demonstrates use of CS50's library and standard input.
10. *****/
11.
12. #include <cs50.h>
13. #include <stdio.h>
14.
15. int
16. main(void)
17. {
18.     printf("State your name: ");
19.     string name = GetString();
20.     printf("O hai, %s!\n", name);
21. }
```

```
1. #include <cs50.h>
2. #include <stdio.h>
3.
4. int
5. main(void)
6. {
7.     printf("Say your name: ");
8.     string s = GetString();
9.     printf("o hai, %s!\n", s);
10. }
```

```
1. /*****
2.  * switch1.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Assesses the size of user's input.
8.  *
9.  * Demonstrates use of a switch.
10. *****/
11.
12. #include <cs50.h>
13. #include <stdio.h>
14.
15. int
16. main(void)
17. {
18.     // ask user for an integer
19.     printf("Give me an integer between 1 and 10: ");
20.     int n = GetInt();
21.
22.     // judge user's input
23.     switch (n)
24.     {
25.         case 1:
26.         case 2:
27.         case 3:
28.             printf("You picked a small number.\n");
29.             break;
30.
31.         case 4:
32.         case 5:
33.         case 6:
34.             printf("You picked a medium number.\n");
35.             break;
36.
37.         case 7:
38.         case 8:
39.         case 9:
40.         case 10:
41.             printf("You picked a big number.\n");
42.             break;
43.
44.         default:
45.             printf("You picked an invalid number.\n");
46.     }
47. }
```

```
1. /*****
2.  * switch2.c
3.  *
4.  * Computer Science 50
5.  * David J. Malan
6.  *
7.  * Assesses a user's grade.
8.  *
9.  * Demonstrates use of a switch.
10. *****/
11.
12. #include <cs50.h>
13. #include <stdio.h>
14.
15. int
16. main(void)
17. {
18.     // ask user for a char
19.     printf("Pick a letter grade: ");
20.     char c = GetChar();
21.
22.     // judge user's input
23.     switch (c)
24.     {
25.         case 'A':
26.             printf("You picked an excellent grade.\n");
27.             break;
28.
29.         case 'B':
30.         case 'b':
31.             printf("You picked a good grade.\n");
32.             break;
33.
34.         case 'C':
35.         case 'c':
36.             printf("You picked a fair grade.\n");
37.             break;
38.
39.         case 'D':
40.         case 'd':
41.             printf("You picked a poor grade.\n");
42.             break;
43.
44.         case 'E':
45.         case 'e':
46.             printf("You picked a failing grade.\n");
47.             break;
48.
```

```
49.  
50.     default:  
51.         printf("You picked an invalid grade.\n");  
52.     }  
53. }
```

```

1. /* http://www.ioccc.org/years.html */
2.
3.         int
4.         X=320           ,Y=200,
5.         n=0,m,         x,y,   j=1024;
6.         double         T=44.0   /7,P[
7.         333333         ],C[5]   = { 0,3,
8.         0,0,8}         ,p=1,     B=11.0
9.         /630,         f=0,r   =   3,g
10.        =7,b           =13,*q=P,  D,*J;
11.        unsigned      char
12.        U[66666],*v=U,*h,l[5555]
13.        ,c=0,*e,*a,*z;
14.
15.        #include <math.h>
16.        #define Rl(t)   t=(int)(t\
17.        *123456789      )%j; t/=j;
18.        #define        Rl(C,t)\
19.        n++[C]         =        t*n/12;
20.        #define        RI(C)   B=-B; Rl\
21.        (r)Rl(g)       )Rl(b)   )for(n\
22.        =0; n<j; ){ Rl(C   ,r)Rl\
23.        (C,g)Rl(C     ,b)++n; }
24.
25.
26.
27.        #ifdef __DJGPP__
28.        #include <sys/movedata.h>
29.        #include <dpmi.h>
30.        #include <pc.h>
31.        #define        Q(u,v)   u##portb(0x3##v
32.        #define        W           ; Q(out,C9),*h++/4)
33.        void          F(int i){ __dpmi_regs r
34.        ; if(i){ for(; i>=0; i--=8)while(
35.        ~Q(in,DA)
36.        )&8^i); for(m=0,z
37.        =h+j; h   <z; m   ++){ Q(
38.        out,C8),m   )W W W; ++h; } dosmempu
39.        (v,X*Y,0xA0000   ); } else{   r.x.ax=
40.        0x13;   __dpmi_int(   0x10,&r); } }
41.        #elif defined(SDL)
42.        #include "SDL/SDL.h"
43.        SDL_Surface   *s; void
44.        F(int i){ if   (i){ SDL_SetColors(
45.        s,h,0,256);   SDL_UpdateRect
46.        (s,0,0,0,   0); } else { SDL_Init(
47.        SDL_INIT_VIDEO); s=SDL_SetVideoMode
48.        (X,Y,8,0);   v=s->pixels; } }

```

```

49.         #else
50.         #include "curses.h"
51.         void F(i){ if(i){ for(y=0;
52.             y<X*Y           ; y++)
53.             { move  (y/X,y%X);      addch
54.             (*(v  +y)/      32)    [" . "
55.             ",:+"  "@#"    ]); } ; refresh
56.             (); }      else{      initscr
57.             (),x=      COLS&~1,X=x<X?x:X,y=
58.             LINES      &~1,Y=y<Y?y:Y; } }
59.         #endif
60.
61. main(void)
62. {
63.     F(0);
64.
65.     for (x=-X/2,y=-Y/2;y<Y/2;++x>=X/2?x=-X/2,y++:4)
66.         { *q++ = sqrt(x*x+y*y);
67.
68.         *q++ = atan2(x,y);
69.
70.     }for (;n<j*2;l[n++]=0);
71.     for(;;)
72.     {
73.         a=l;z=l+j;e=l+j*2;
74.         if ((p+=B)>1){p=2-p;RI(l+j)}
75.         else if (p<0){p=-p;RI(l)}
76.
77.         while(a<l+j) D=p**a+++ (1-p)**z++,*e++=D;
78.         h=l+j*2;
79.
80.         for (J=P,z=v; z<v+X*Y;){
81.             D = *J++;
82.             *z++=fabs(sin((*J++C[1])*1.5+D*C[0]+C[2]*sin(C[3]+D/C[4]))*255);
83.         }F(8);
84.
85.         C[2]+=B; f+=T/360; C[3]+=f;
86.
87.         if (f>T)
88.             {C[1] += (f-T)/8;
89.
90.             if (f>T*2)
91.                 C[0]=sin(f)+sin(f*2)/2;
92.             }
93.     }
94. }

```