

Robust Interactive Input

- *Problem:* Ensure that input entered by a human user is of the expected type, and in the expected range.

```
int userInput;          /* input - a user-provided value */

/* Prompt the user and read in the user input value */
printf
("Please enter an integer value between -10 and +10 > ");
scanf("%d", &userInput);

/* Was input out of range? */
if ((userInput < -10) || (userInput > 10))
{
    printf("Sorry, your input value was out of range.\n");
}
else /* Valid input! */
    /* In a "real" program, here is where */
    /* we'd do something with the value. */
{
    printf("Your value was %d.\n", userInput);
}
```

```

int userInput;          /* input - a user-provided value */

int resultCode;        /* program variable - indicates how */
                       /* many values this call of scanf was */
                       /* able to read correctly. */

/* Prompt the user and read in the user input value */
printf
("Please enter an integer value between -10 and +10 > ");
resultCode = scanf("%d", &userInput); /* NOTE resultCode */

/* Check whether input was nonnumeric, out of range, or valid */
if (resultCode == 0) /* no value was validly read */
{
    printf("Sorry, your input value was invalid.\n");
}

else if ((userInput < -10) || (userInput > 10))
{
    printf("Sorry, your input value was out of range.\n");
}

else /* Valid input! */
    /* In a "real" program, here is where */
    /* we'd do something with the value. */
{
    printf("Your value was %d.\n", userInput);
}

```

```

resultCode = scanf("%f", &userInput);  /* NOTE resultCode */

/* Check whether input was nonnumeric */
if (resultCode == 0)  /* no value was validly read */
{
    printf("Sorry, your input value was invalid.\n");
}

/* Check whether input was not an integer */
else if (((int) userInput) != userInput)
{
    printf("Sorry, your input value was not an integer.\n");
}

/* Check whether input was out of range */
else if ((userInput < -10) || (userInput > 10))
{
    printf("Sorry, your input value was out of range.\n");
}

else  /* Valid input! */
    /* In a "real" program, here is where */
    /* we'd do something with the value. */
{
    printf("Your value was %f.\n", userInput);
}

```