25.6   The <wctype.h> Header (C99)
Wide-Character Classification and Mapping Utilities

The <wctype.h> header is the wide-character version of the <ctype.h> header. <ctype.h> provides two kinds of functions: character-classification functions (like isdigit, which tests whether a character is a digit) and character case-mapping functions (like toupper, which converts a lower-case letter to upper case). <wctype.h> provides similar functions for wide characters, although it differs from <ctype.h> in one important way: some of the functions in <wctype.h> are "extensible." meaning that they can perform custom character classification or case mapping.

<wctype.h> declares three types and a macro. The wint_t type and the WEOF macro were discussed in Section 25.5. The remaining types are wctype_t, whose values represent locale-specific character classifications, and wctrans_t, whose values represent locale-specific character mappings.

Most of the functions in <wctype.h> require a wint_t argument. The value of this argument must be a wide character (a wchar_t value) or WEOF. Passing any other argument causes undefined behavior.

The behavior of the functions in <wctype.h> is affected by the LC_CTYPE category of the current locale.

Wide-Character Classification Functions

```
int iswalnum(wint_t wc);
int iswalpha(wint_t wc);
int iswblank(wint_t wc);
int iswcntrl(wint_t wc);
int iswdigit(wint_t wc);
int iswgraph(wint_t wc);
int iswlower(wint_t wc);
int iswprint(wint_t wc);
int iswpunct(wint_t wc);
int iswspace(wint_t wc);
int iswupper(wint_t wc);
int iswxdigit(wint_t wc);
```

Each wide-character classification function returns a nonzero value if its argument has a particular property. Table 25.19 lists the property that each function tests.

The descriptions in Table 25.19 ignore some of the subtleties of wide characters. For example, the definition of iswgraph in the C99 standard states that it "tests for any wide character for which iswprint is true and iswspace is false,"