CS10003:
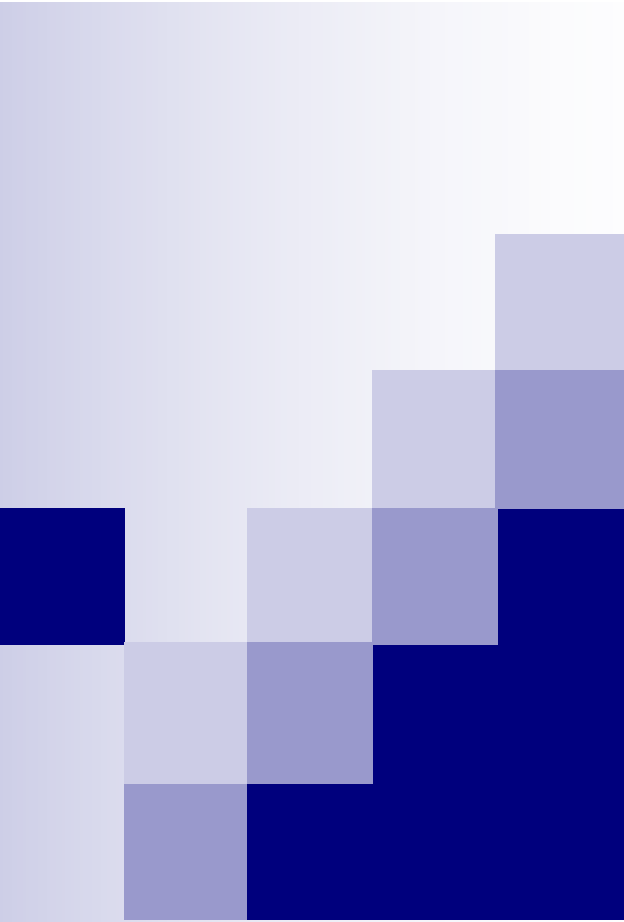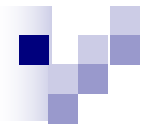# Programming & Data Structures

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Data-types, Variables and I/O

Character Sets in C

Alphabets: A, B, …, Z

               a, b, …, z
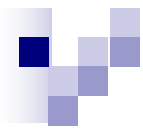
Digits: 0, 1, …9

Special Characters:

    , < > .; % \ | ~ # ? ( ) " " + etc.

White Space Characters:

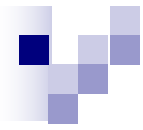   blank space, newline, tab etc

Variables

A variable is an entity that has a value and is known to the program by a name.

A variable definition associates a memory location with the variable name.

A variable can have only one value assigned to it at any given time during the execution of the program.

Its value gets updated/changed during the execution of the program.

Example: f= 1.8 * c + 32
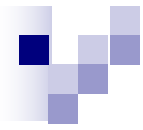
Variable Names

Sequence of letters and digits.

First character is a letter.

Examples: i, rank1, MAX, Min, class_rank

dataType

Invalid examples:

a's, fact rec, 2sqroot

class,rank

Identifiers and Keywords

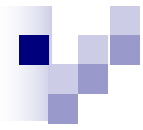Identifiers are used to identify or name variables.

Identifiers names must be sequences of letters and digits, and must begin with a letter

The underscore character '_' is considered a letter

Names should not be the same as a keyword like 'int', 'char', 'void' etc.

C is case sensitive.

For any internal identifier, at least the first 31 characters are significant in any ANSI C Compiler.

Data Types

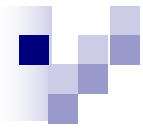C language supports the following basic data types:

char: a single byte that can hold one character

int: an integer

float: a single precision floating point number

double: a double precision floating point number

Precision refers to the number of significant digits after the decimal point.

Data Types

Abstraction is necessary.

Integer Data Types:

Integers are whole numbers that can assume both positive and negative values, i.e., elements of the set:

$$\{ ..., -3, -2, -1, -, 1, 2, 3, ... \}$$