FACULTY OF ENGINEERING & TECHNOLOGY

BCS-503: Object Oriented Techniques

Lecture-18

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OBJECTIVES
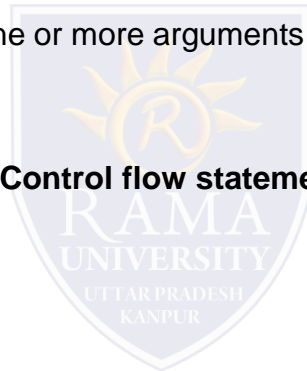
In this PPT, you will learn to:

❖**Explain the basics of Java Language**

❖**Identify the Data Types**

❖**Understand arrays**

❖**Identify Operators**

❖**Format output using Escape Sequence**

❖**Use Control Flow Statements**

BASICS OF THE JAVA LANGUAGE

- **Data types** determine the type of data to be stored in memory

- A **variable** is a named memory location.

- An **operator** is a symbol that operates on one or more arguments to produce a result.

- Programs are executed in sequential order. **Control flow statements** allow variations in this sequential order.
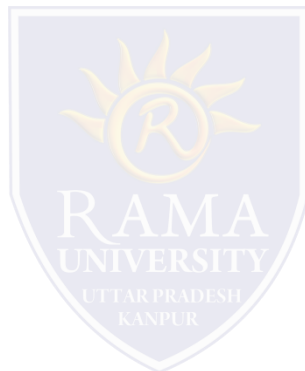
DATA TYPES

Primitive Data Types

- byte
- char
- boolean
- short
- int
- long
- float
- double

Reference Data Types

- Array
- Class
- Interface

ARRAYS

- An array is a data structure that stores data of same data type in consecutive memory locations.

- Three ways to declare an array are:

    - datatype identifier [ ];
    - datatype identifier [ ] = new datatype[size];
    - datatype identifier [ ] = {value1,value2,….valueN};

- Array can have more than one dimension

OPERATORS

Operators	Description	Examples
Arithmetic Operators	Arithmetic Operators use numeric operands. These operators are mainly used for mathematical calculations.	+, - * % etc
Relational Operators	Relational Operators test the relation between two operands. The result of an expression where relational operators are used is boolean.	==, >=, <= etc
Logical Operators	Logical Operators work with boolean operands.	&, |, ^ etc
Conditional Operators	The Conditional Operator is unique, because it is a ternary or triadic operator that has three operands to the expression. It can replace certain types of if-then-else statements.	?=, =, *=, /=, +=, -=
Assignment Operators	The Assignment Operator is a single equal sign, =, and assigns a value to a variable.	=

FORMATTING OUTPUT WITH ESCAPE SEQUENCES

- Whenever an output is to be displayed on the screen, it needs to be formatted.

- The formatting can be done with the help of escape sequences that Java provides.

Example:

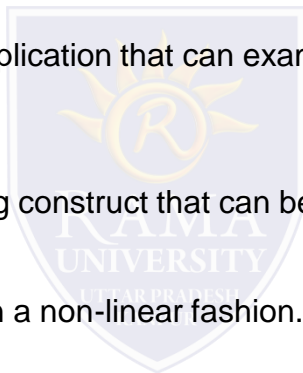**System.out.println ("Happy \tBirthday");**

Output:

Happy   Birthday

CONTROL FLOW STATEMENTS

- All application development environments provide a decision making process called control flow statements that direct the application execution.

- Control flow enables a developer to create an application that can examine the existing conditions, and decide a suitable course of action.

- Loops or iterations are an important programming construct that can be used to repeatedly execute a set of actions.

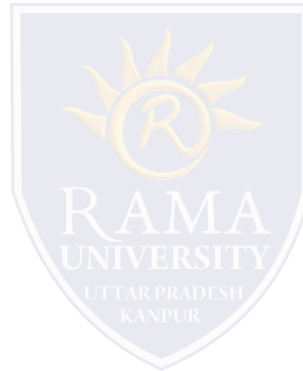- Jump statements allow the program to execute in a non-linear fashion.

- **Decision-making**

  1) if-else statement

  2) switch-case statement

- **Loops**

  1) while loop

  2) do-while loop

  3) for loop
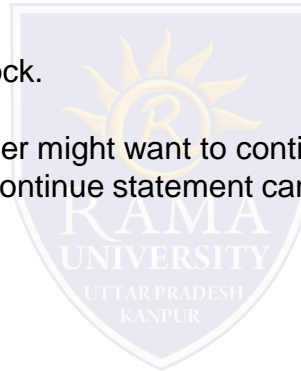
- **Two jump statements are:**
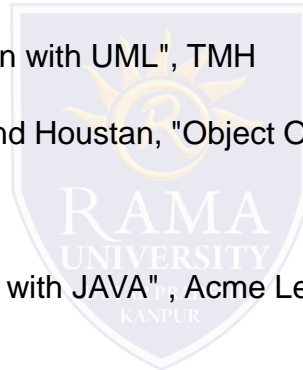 - o break
  - o continue

- break statement: It is used to terminate the block.

- continue statement: Sometimes the programmer might want to continue a loop, but stop processing the remainder of the code in its body for a particular iteration. The continue statement can be used for such an action.

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Pearson Education

6. Pandey, Tiwari, " Object Oriented Programming with JAVA" , Acme Learning

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10. https://www.slideshare.net/niitstudentcare/

Multiple Choice Question:

Q1. Which of the following is used with the switch statement?

a) Continue

b) Exit

c) break

d) do

Multiple Choice Question:

Q2. Which of these selection statements test only for equality?

    a) if

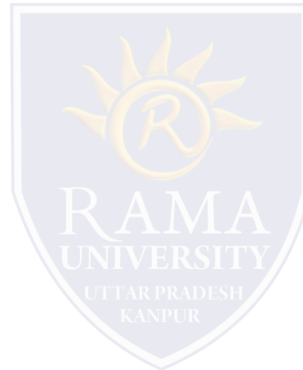   b) switch

    c) if & switch

    d) none of the mentioned

Multiple Choice Question:

Q3. Which of these are selection statements in Java?

      a) if()

      b) for()

      c) continue

      d) break

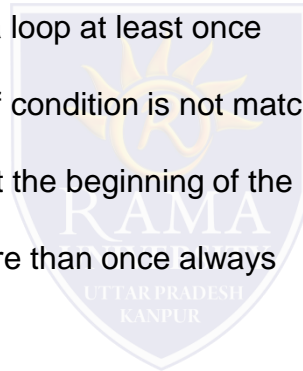## Multiple Choice Question:

Q4. What is true about do statement?

a) do statement executes the code of a loop at least once

b) do statement does not get execute if condition is not matched in the first iteration

c) do statement checks the condition at the beginning of the loop
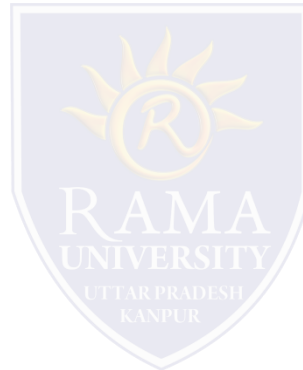
d) do statement executes the code more than once always

Multiple Choice Question:

Q5. Which of the following is used with the switch statement?

a) Continue

b) Exit

c) break

d) do

In this PPT, you learned that:

➢ Java has built-in data types, known as primitive data types.

➢ Variables are basic units of storage.

➢ Casting is a facility of converting a data type to another data type.

➢ Arrays are used to store several items of same data type in consecutive memory locations.

➢ Java provides different types of operators. They include:

❑ Arithmetic

❑ Relational

❑ Logical

❑ Conditional

❑ Assignment

➢ Java supports the following programming constructs for the control statements:

❑ if - else

❑ switch

❑ for

❑ while

❑ do - while

➢ The two jump statements, break and continue, help to transfer control to another part of the program.