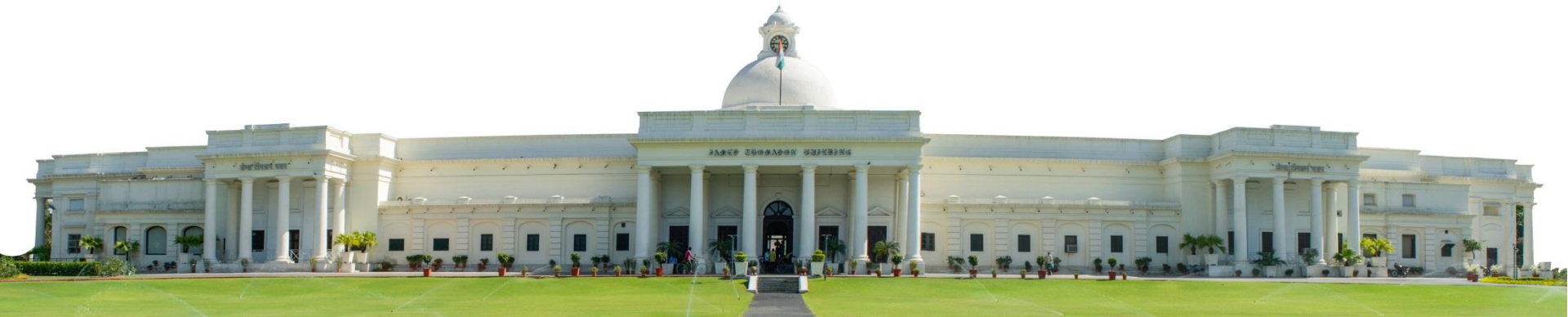
CSN-103: Fundamentals of Object Oriented Programming

Instructor: Dr. Rahul Thakur

Assistant Professor, Computer Science and Engineering, IIT Roorkee



Control Statements

- Alter the ***linear*** flow of execution of a program
  - Branch
  - Advance
- Three categories
  - **Selection:** Allow your program to choose different paths of execution
  - **Iteration:** Enable program execution to repeat one or more statements
  - **Jump:** Allow your program to execute in a nonlinear fashion

Java's Selection Statements

- Java supports two selection statements: ***if*** and ***switch***
- **If :** Conditional branch statement
  - General form

```
if (condition)
    statement1;
else
    statement2;
```

else block is Optional

```
if (condition)
{
    statement1;
    statement2;
}
else
{
    statement3;
    statement4;
}
```

Nested ifs

- A nested **if** is an **if** statement that is the target of another **if** or **else**

```
if(i == 10)
{
      if(j < 20)
            a = b;
      if(k > 100)
            c = d;
      else
            a = c;
}
else
      a = d;
```

Use { } to avoid confusion

if-else-if Ladder

- General Form

```
if(condition)
      statement;
else if(condition)
      statement;
else if(condition)
      statement;
.
.
else
      statement;
```

- Last else block is optional

switch

- **switch:** Multiway branch statement
- General form

```
switch (expression)
{
        case value1:
        // statement sequence
        break;
        case value2:
        // statement sequence
        break;
        ...
        case valueN :
        // statement sequence
        break;
        default:
        // default statement sequence
}
```

expression must be of type **byte**, **short**, **int**, **char or String**

switch

- Optional
  - Adding break statement after each case
    - execution will continue on into the next **case** until a break statement (or the end of the switch) is reached
  - Adding a default case
    - If no case matches and no default is present, then no further action is taken

Nested switch Statements

- You can use a switch as part of the statement sequence of an outer switch

```
int i,j;
switch(i) {
        case 1:
        switch(j) {
                case 0:
                        System.out.println("target is zero");
                        break;
                case 1:
                        System.out.println("target is one");
                        break;
        }
        break;
        case 2: // ...
```