Java Conditional Statements

Lecture - 3

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The if Selection Structure

- Single-entry/single-exit structure
- Perform action only when condition is **`true`**
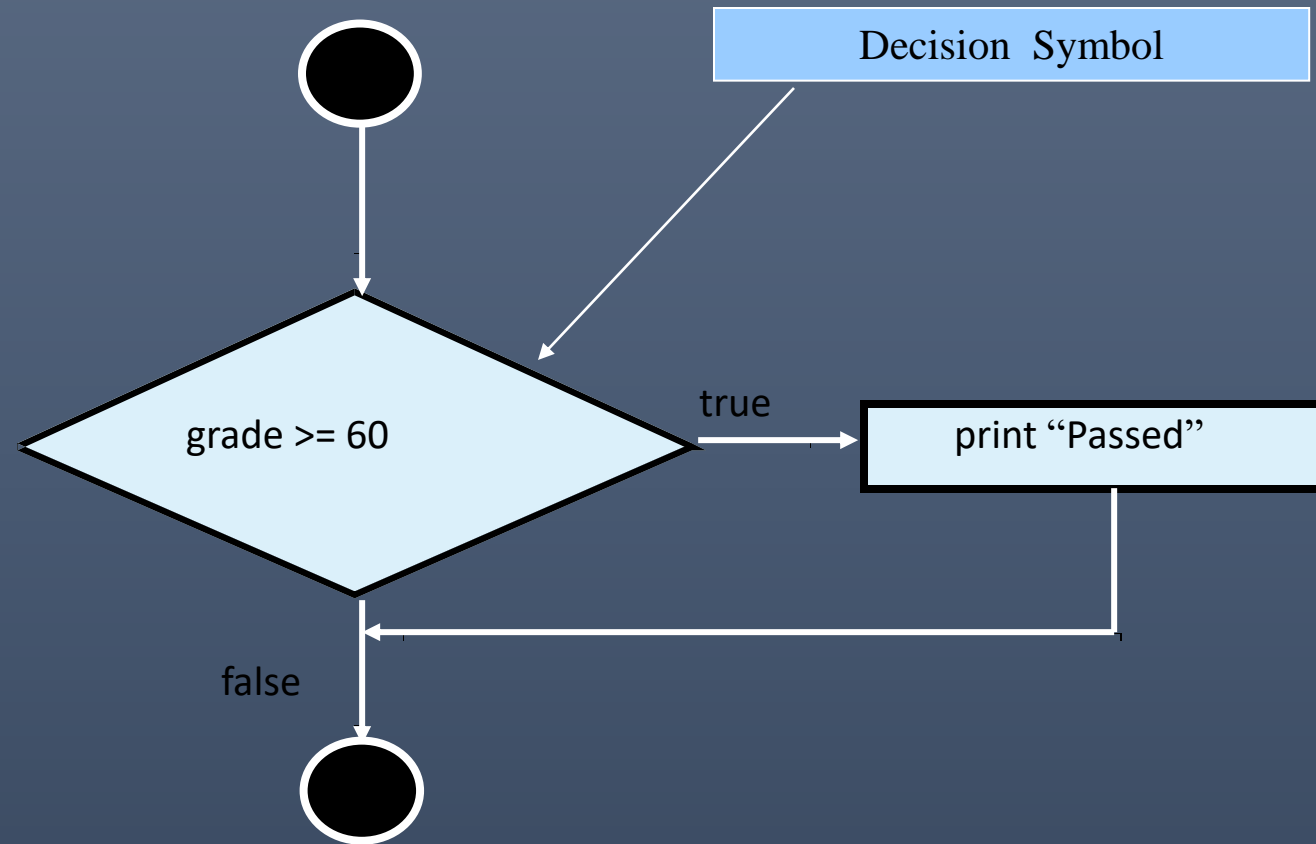- Action/decision programming model

Fig - Flowcharting the single-selection if structure.

The if/else Selection Structure

- Perform action only when condition is **`true`**
- Perform different specified action when condition is **`false`**
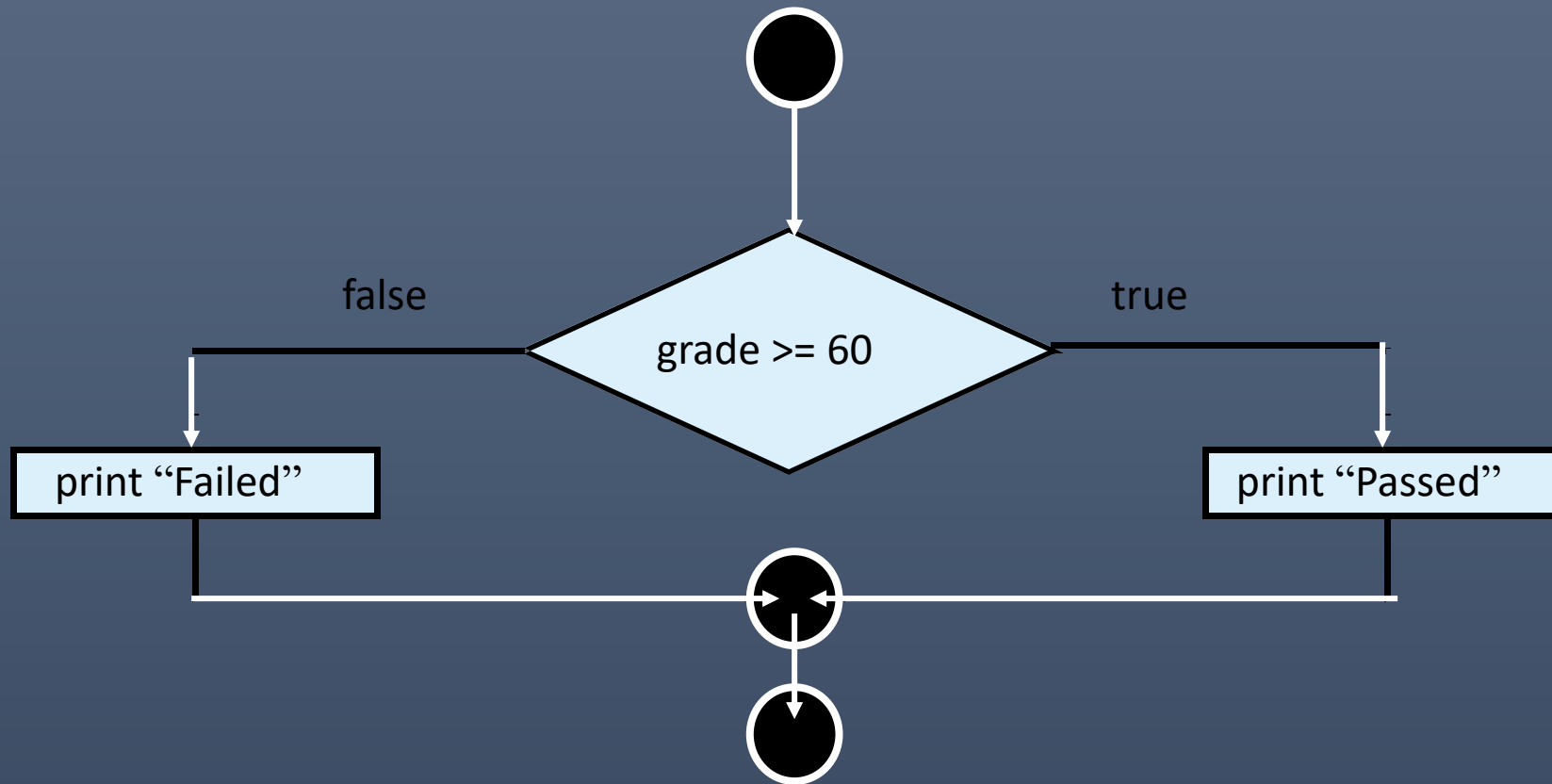- Conditional operator (**`?:`**) cans be used as alternative

Fig - Flowcharting the double-selection if/else structure.

If-else Ladder

- A program can test multiple cases by placing if...else statements inside other if...else statements to create nested **if...else** statements.

- For example if we are given a variable *student Marks* we can check the grade as the following

If-else Ladder

```java
if(percentage >= 90){
    System.out.println("Grade A");
}else if(percentage < 90 && percentage >= 80){
    System.out.println("Grade B");
}else if(percentage < 80 && percentage >= 70){
    System.out.println("Grade C");
}else if(percentage < 70 && percentage >= 60){
    System.out.println("Grade D");
}else if(percentage < 60 && percentage >= 50){
    System.out.println("Grade E");
}else if(percentage < 50 && percentage >= 40){
    System.out.println("Grade F");
}else {
    System.out.println("Failed!");
}
```

Fig: else-if ladder
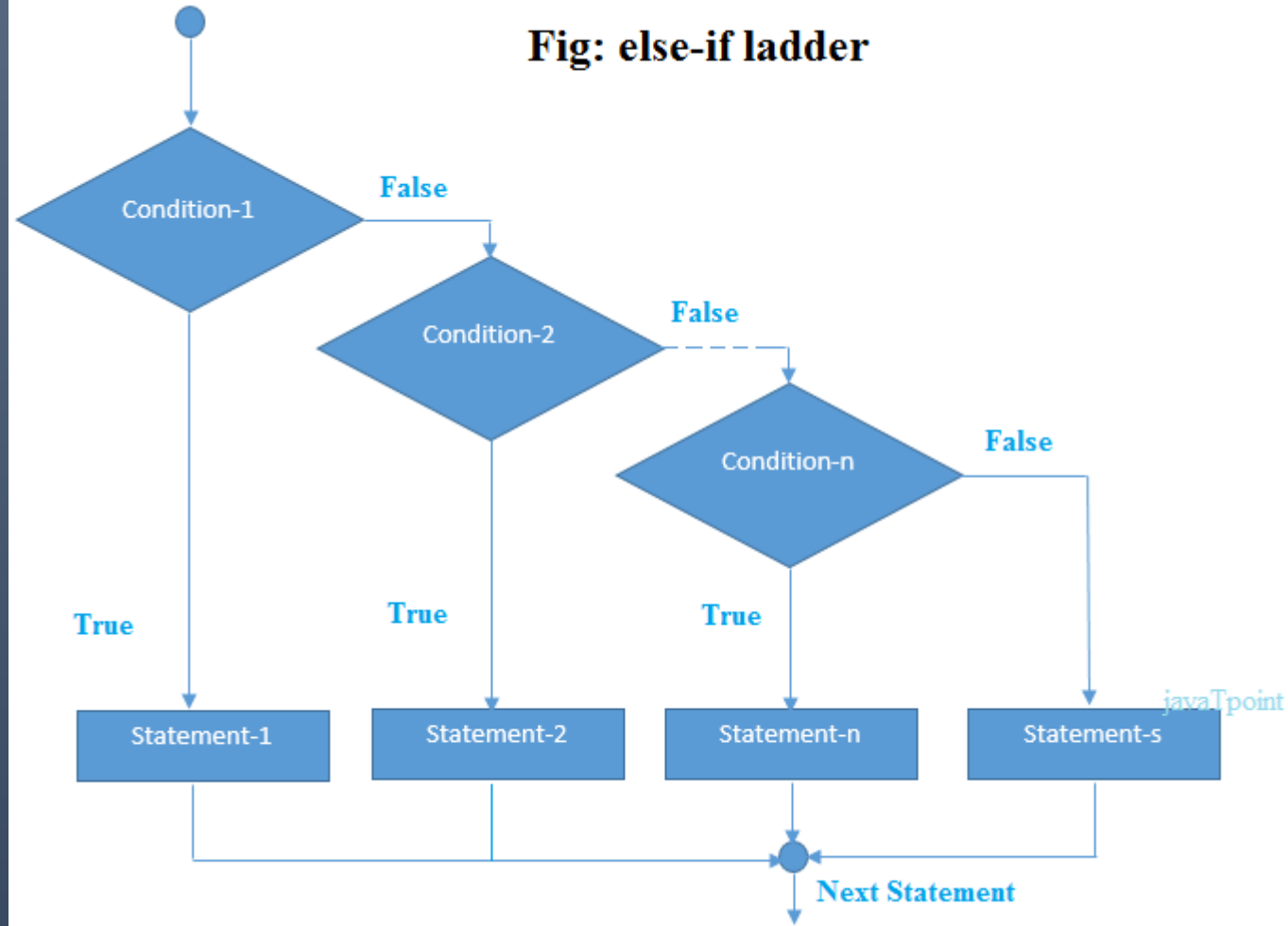
Alternative of if

```
if (score >= 90.0)
  grade = 'A';
else
  if (score >= 80.0)
    grade = 'B';
  else
    if (score >= 70.0)
      grade = 'C';
    else
      if (score >= 60.0)
        grade = 'D';
      else
        grade = 'F';
```

Equivalent

```
if (score >= 90.0)
  grade = 'A';
else if (score >= 80.0)
  grade = 'B';
else if (score >= 70.0)
  grade = 'C';
else if (score >= 60.0)
  grade = 'D';
else
  grade = 'F';
```

Switch Statements

```java
switch (status) {
    case 0:  compute taxes for single filers;
            break;
    case 1:  compute taxes for married file jointly;
            break;
    case 2:  compute taxes for married file separately;
            break;
    case 3:  compute taxes for head of household;
            break;
    default: System.out.println("Errors: invalid status");
            System.exit(0);
}
```

Switch-case statement Example:

```java
import java.util.Scanner;
public class HelloCSE {
public static void main(String[] args) {
    char grade;
    Scanner a = new Scanner(System.in);
    grade = a.next().charAt(0);
  switch (grade) {
  case 'A':
        System.out.println("Excellent!");
        break;
   case 'B':
  case 'C':
        System.out.println("Well done");
        break;

  case 'D':
        System.out.println("You passed");
        break;
  case 'F':
        System.out.println("Better try again");
        break;
  default:
        System.out.println("Invalid grade");
        }
      System.out.println("Your grade is " + grade);
    }
}
```
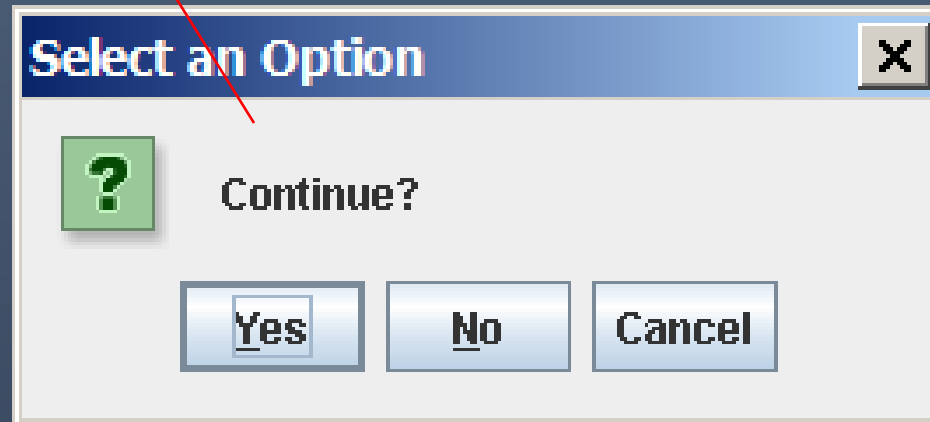
(GUI) Confirmation Dialogs

int option = JOptionPane.showConfirmDialog

(**null**, "Continue");

Click here for source

If else -(GUI) Confirmation Dialogs

```java
import javax.swing.JOptionPane;

public class JavaApplication4{
public static void main(String[] args) {

    int option = JOptionPane.showConfirmDialog(null, "Yes-No statement");
        if (option == JOptionPane.YES_OPTION) {
            JOptionPane.showConfirmDialog(null, "The IF statement");
        }
        else if (option == JOptionPane.NO_OPTION) {
            JOptionPane.showConfirmDialog(null, "The ElSE statement");

        }
        else{
            JOptionPane.showConfirmDialog(null, "You have select cancel!");
        }
    }
}
```