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Section one.

1. Primitive Data types ->
The information is stored as the value of that variable.
Reference Data types -> Holds a reference to information related to that variable.

2. Scope of a variable -> This is the block of code in the entire program whereas the variable is declared, used and can be modified.

3. Why initialization of variables required ->
Because they dont have a default value and the compiler won't let us use an uninitialized value.

4 Static variable ->
They are created when the programs starts and destroyed when the program stops.
Instance variable ->
Are created when an object is created with the use of the keyword 'new' and destroyed when the

object is destroyed.
Local Variable →
A variable that is declared inside the body of a method.

5. Widening Casting → This involves conversion of smaller data type to the larger type size; convert a integral type to Decimal.
Narrowing Casting →
Converting a larger data type to a smaller size type.

6

TYPE	SIZE (IN BYTES	DEFAULT	RANGE
boolean	1 bit	False	true, false
Char	2	\u0000	'\0000' to '\ffff'
Byte	8 bit	0	-128 to 127
Short	16 bit	0	-2^{15} to $+2^{15}-1$
Int	4		-2,147,483,648 to
Long	1 byte	0L	-128 to 127
Float	4	00.0f	$1.40239846 \times 10^{-45}$
Double	8	0.0d	-1.8E +308 to +
			1.8E +308

7 Package in java:
is a namespace that organizes a set of related classes and interface.

8. Importance of using java packages.
Java packages are used to avoid name conflicts, and to write a better maintable code.

Section 2.

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args){
  Scanner input = new Scanner (System.in);
System.out.print("Enter your Surname: ");
String surname = input.nextLine();
System.out.print("Enter your age: ");
int age = input.nextInt();
int surnameLength = Surname.length();
String ageType = (age % 2 == 0) ? "even" : "odd";
System.out.println("Number of characters in your surname:
    +surnameLength
System.out.Println("Your age is " +agetype +".")
}
}
```

2 Java program to ask student to enter the marks of the five units.

```
import java.util.Scanner;
Public class AverageMarks {
public static void main (string [] args) {
Scanner input = new Scanner (System.in);
double [] marks = new double [5];
 double sum = 0;
System.out.println ("Enter the marks of the five units:");
for (int i = 0; i < marks.Length ; i++) {
marks [i] = input .nextDouble ();
sum + = marks [i];
  }
double average = sum / marks.Length ;
system.out.printf ("The average marks is: %.2f",
  average);
  }
}
```

3 Write a program that will help kids learn divisibly test of numbers of integers.

```
Python
def check_divisibility (num):
for i in range (10);
 if i == 0;
    Continue
if num % i == 0;
print (f" {num} is divisible by {i}")
  else:
  print (f" {num} is not divisible by {i}")
num = int (input ("Enter an integer: "))
 check_divisibility (num)
```

4 Write a java program to display all the multiples of 2, 3, and 7, within the range 1, 150

java

```
public class Multiples {
public static void main (String [] args) {
for (int i = 1; i <= 150; i++) {
if (i % 2 == 0) {
System.out.println (i + "is a multiple of 2");
    }
if (i % 3 == 0) {
System.out.println (i + "is a multiple of 3");
    }
if (i % 7 == 0) {
system.out.println (i + "is a multiple of 7");
        }
    }
}
}
```

5 java

```
import java.util.Scanner;
public class Calculator {
public static void main(String[] args) {
double num1, num2, result;
char operator;

Scanner input = new Scanner(System.in);

System.out.println("Enter first number: ");
num = input.nextDouble();

System.out.println("Enter operator (+,-,*,/): ");
operator = input.next().charAt(0);

System.out.println("Enter second number: ");
num2 = input.nextDouble();

Switch(Coperator) {
Case '+':
result = num1 + num2;
```

```
System.out.println(num1 + "+" + num2 + "=" +
result);
break;

Case '-':
result = num1 - num2;
System.out.println(num1 + "-" + num2 + "=" +
result);
break;

Case '*':
result = num1 * num2;
System.out.println(num1 + "*" + num2 + result);
break;

Case '/':
result = num1 / num2;
System.out.println(num1 + "/" + num2 + "=" +
result);
break;
default:
System.out.println("Invalid operator!");
```

```
break;
}
Input.close();
    }
}
```