# Question – 1: This question focuses on the types of errors.

## Write JAVA statements that can produce Syntax Errors. Give three different examples and write the names of errors.

**Syntax Errors:**

Errors due to which code is not compiled like it happens when we do not follow java rules for coding java language.

### Example 1.

package com.mycompany.assignment\_1;

public class QuestionOneA

{

public static void main (String[] args)

{

System.out.println(HELLO);

}

}

**Reason:**

There will be Syntax error in this code due to missing inverted commas in System.out.println(Hello); line   
This line should be like that System.out.println(“HELLO”);

### Example 2.

package com.mycompany.assignment\_1;

public class QuestionOneB

{

public static void main (String[] args)

{

int a=10

int b=20

int c=a+b

System.out.println(c);

}

}

**Reason:**

This ode will give syntax error because smi-colon are missing in lines initializing the variables .

### Example 3.

public class QuestionOneC

{

public static void main(String[] args)

{

int a=10;

String name="Ali";

int multiple=a\*name;

System.out.println(multiple);

}

}

**Reason:**

There is a syntax error because we can not multiply a int variable data type with string variable data type so this is a syntax error and code will not compile .

## Write JAVA statements that can produce Logical Errors. Give three different examples and briefly explain the reason (1-2 lines)

### Example 1:

import java.util.Scanner;

public class QuestionOneB\_i

{

public static void main(String[] args)

{

//Logical Error

Scanner input= new Scanner(System.in);

System.out.println("Enter Numbers to get their sum and multiple");

System.out.println("Enter Number 1");

int num1=input.nextInt();

System.out.println("Enter Number 2");

int num2=input.nextInt();

int result;

result=num1+num2;

result=num1\*num2;

System.out.println("Sum is "+result);

System.out.println("Product is "+result);

}

}

Output:

A screen shot of a computer code

Description automatically generated

Reason:

This code has logical error . This is storing both values of sum and multiplication in same variable and than printing the results . This will print only results of multiplication because variable will print latest updated value.We can solve this problem by printing step by step or by making variables of different names.

### Example 2:

import java.util.Scanner;

public class QuestionOneB\_ii

{

public static void main(String[] args)

{

//Logical Error

Scanner input= new Scanner(System.in);

System.out.println("Enter two numbers to get sum and than enter third number to divide sum with number 3");

System.out.println("Enter Number 1");

int num1=input.nextInt();

System.out.println("Enter Number 2");

int num2=input.nextInt();

System.out.println("Enter Number 3");

int num3=input.nextInt();

int result=num1+num2/num3;

System.out.println("Result is "+result);

}

}

Output:

A screen shot of a computer code

Description automatically generated

Reason:

This code has a logical error. It will not first do sum of two numbers and then divide them with 3rd number. It will first divide number 2 and number 3 and then it will sum their result with number 1. So it will not give desired output. It is a logical error .

### Example 3:

public class QuestionOneB\_iii

{

public static void main(String[] args)

{ //Logical Error

System.out.println("Number Printing from 1 to 10");

for(int i=1; i<=10; i--)

{

System.out.println(i);

}

}

}

Output:

A screenshot of a computer

Description automatically generated

Reason:

This code has a logical error . It will compile but after compiling instead of printing from 0 to 10 it will print in negative values and it will not stop because it has logical error –i that will decrement in value of i instead of increment.

## Write JAVA statements that can produce Run Time Errors. Give three different examples and briefly explain the reason (1-2 lines)

### Example 1:

package com.mycompany.assignment\_1;

import java.util.Scanner;

public class QuestionOneC\_i

{

public static void main(String[] args)

{

//Run Time Error

Scanner input= new Scanner(System.in);

System.out.println("Enter Number 1");

int num1=input.nextInt();

int num2=0;

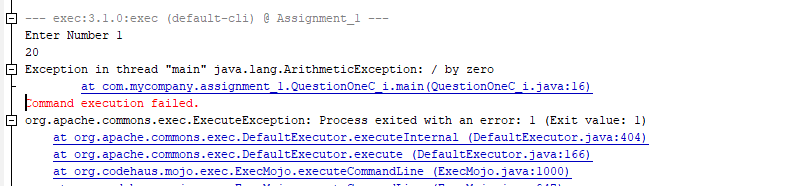
int result=num1/num2;

System.out.println("Result of division is : "+result);

}

}

Output:



Reason:

This code has run time error. In java any number can not be divided by zero. So this code will compile and run but when we will enter number to divide by zero it will give us error during running the programme . So this is a runtime error .

### Example 2:

package com.mycompany.assignment\_1;

import java.util.Scanner;

public class QuestionOneC\_ii

{

public static void main (String [] args)

{

Scanner input= new Scanner (System.in);

System.out.println("Enter Your Age in English");

int age= input.nextInt();

}

}

Output:

A screenshot of a computer program

Description automatically generated

Reason:

This code will give run time error .If we enter age as twenty because we selected data type int so if we enter string it will give us runtime error .

### Example 3:

package com.mycompany.assignment\_1;

import java.util.Scanner;

public class QuestionOneC\_iii

{

public static void main (String [] args)

{

Scanner input= new Scanner (System.in);

System.out.println("Enter Number Greater than 127");

byte number =input.nextByte();

System.out.println(number);

}

}

Output:

A screenshot of a computer code

Description automatically generated

Reason:

As we declared the data type as byte it can store maximum number upto 127 only . So this code will compile and run but when we will enter value greater than 127 like 128 in this case it will crash the code . This is a runtime error.

## The following program has syntax errors. Write clearly type of error and its correction (in tabular form). After you have corrected the syntax errors, show the output of this program.

|  |  |  |  |
| --- | --- | --- | --- |
| Line 1 | count = 1; | Data Type not Declared of count | int count =1; |
| Line 2 | sum = count + PRIME; | 1. Data Type of sum is not declared 2. PRIME is not delared as a variable at any where before this line | int PRIME=0;  int sum=count+PRIME; |
| Line 3 | x := 25.67; | 1. Data Type of X is not declared 2. We can not use colon like that (like x:= sum) This is a syntax error. | Double x=25.67; |
| Line 4 | newNum = count \* ONE + 2; | 1. Data Type of variable newNum is not declared. 2. We can not add and multiply string and int in a variable of data type int . | Int newNum=count\*1+2; |
| Line 5 | sum + count = sum; | It also has Syntax error . we can assign work on right side of “=” sign . Left side should have one variable . | sum=count+sum; |
| Line 6 | x = x + sum \* COUNT; | As java is a case sensitive language . So variable count should be called in lower case as it was declared . But in this line we are calling it as in UPPER case so it will be not recognized by java and it will give us error. | x=x+sum+count; |
| Line 7 | System.out.println(" count = " + count + ", sum = " + sum + ", PRIME = " + Prime); | As java is a case sensitive language so we should call PRIME variable in upper case as it was declared . | System.out.println(" count = " + count + ", sum = " + sum + ", PRIME = " + PRIME); |

# Question – 2: This question focuses on the basic elements of JAVA language (comments, Special Symbols, Reserve Words and Identifiers)

Solution:

|  |  |
| --- | --- |
| comments (Single Line, Multiline) | 1. // first number 2. /\*This program will calculate product of three numbers \*/ |
| Special symbols (three) | 1. () 2. = 3. ; |
| Reserve words (three) | 1. Public 2. Static 3. void |
| - Identifier (predefined and defined by user) | 1. Predefined 2. Int 3. Strint 4. println 5. Defined by user 6. Product 7. num1 8. result |
| Standard Input Stream Object | In this code object is not utilized or declared. |
| Standard Output Stream Object | System.out.println("Product of numbers: "+result); |

# Question – 3: This question focuses on the basic elements of JAVA language (Primitive Data Types, Expressions and Assignments, Arithmetic Operators, Order of Precedence, Augmented Assignment Operators, Type Conversion)

## Write Java statements that accomplish the following.

**Declare int variables x and y.**

int x,y;

**Initialize an int variable x to 10 and a char variable ch to ' B '.**

Int x=10;

char ch='B';

**Update the value of an int variable x by adding 5 to it.**

Int x =10;

x=x+5;

**Declare and initialize a double variable payRate to 12.50.**

double payRate=12.50;

**Copy the value of an int variable firstNum into an int variable tempNum.**

Int tempNum=firstNum;

**Swap the contents of the int variables x and y. (Declare additional variables, if necessary.)**

int a=10;

int b=20;

int c=a;

a=b;

b=c;

**Suppose x and y are double variables. Output the contents of x , y , and the expression x +12/ y – 18.**

package com.mycompany.assignment\_1;

public class QuestionThreeA

{

public static void main (String [] args)

{

double x=10;

double y=10;

System.out.println("Output of x"+x);

System.out.println("Output of y"+y);

System.out.println("Output of Expression is ");

double output=x+12/y-12;

System.out.println(output);

}

}

Output:

A screenshot of a computer program

Description automatically generated

**Declare a char variable grade and set the value of grade to 'A'.**

char grade;

grade='A';

**Declare int variables to store four integers.**

int num1,num2,num3,num4;

**Copy the value of a double variable z to the nearest integer into an int variable x.**

double z=4.8;

int x=(int)Math.round(z);

System.out.println(x);

## Suppose a, b and c are int variables and a = 5, b = 6, d = 2. What value is assigned to each variable after each statement executes? If a variable is undefined at a particular statement, report UND (undefined) NOTE: Consider a = 5, b = 6, d = 2 for all of the following statements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Statements** | **a** | **b** | **c** | **d** |
| a = (b++) + 3 \* ++d; |  |  |  |  |
| c = 2 \* d + (++b) + a; |  |  |  |  |
| b = 2 \* (++c) - (a++); |  |  |  |  |
| d = d++ + d + b++ + b; |  |  |  |  |