Preparation for Fourth Session

Opgave 2.16.1

Can different types of numeric values be used together in a computation?

Besvarelse

- Yes, it is possible the only thing to consider is that we need to convert these values while we are printing.
- We will give a following example.

Opgave 2.16.2

What does an explicit casting from a double to an int do with the fractional part of the double value? Does casting change the variable being cast?

Besvarelse

- It acts like a modulos where we can see that the doubles decimal number gets thrown off, and the whole number of the double returns as an integer on the console.

Opgave 2.16.3

Show the following output:

```
float f = 12.5F;
int i = (int)f;
System.out.println("f is " + f);
System.out.println("i is " + i);
```

Besvarelse

- We have written the following code in the main-program.

```
public class Main {
    public static void main(String[] args) {
        float f = 12.5F;
        int i = (int)f;
        System.out.println("f is " + f);
        System.out.println("i is " + i);
    }
}
```

- We can see that we get the following output in the console.

```
C:\Users\vivek\.
f is 12.5
i is 12
```

Opgave 2.16.4

If you change (int) (tax * 100) / 100.0 to (int) (tax * 100) / 100 in line 11 in Listing 2.8, what will be the output for the input purchase amount for 197.556.

Besvarelse

- If we change the last part of line 14, then we get the following code in our program.

```
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.println("Enter purchase ammount: ");
        double purchaseAmount = input.nextDouble();

        double tax = purchaseAmount * 0.06;
        System.out.println("Sales tax is $" + (int) (tax * 100) / 100);
    }
}
```

- We can see, that we get the following in the console.

```
C:\Users\vivek\.jdks\openjdk-18.0.2.1
Enter purchase ammount:
197.556
Sales tax is $11853

Process finished with exit code 0
```

Opgave 2.16.5

Show the output of the following code:

```
double amount = 5;
System.out.println(amount / 2);
System.out.println(5 / 2);
```

Besvarelse

- When we write the code, we can see that the amount with double type is 5.
- But, when we use an integer to divide with 2 in the last statement, then we can see that we will get the whole number.
- Whereas in the first print statement, we can see that we will get a result of 2,5 because of the double.

```
public class Main {
    public static void main(String[] args) {
        double amount = 5;
        System.out.println(amount / 2);
        System.out.println(5 / 2);
    }
}
```

- We get the following result, as predicted.

```
C:\Users\vivek\
2.5
2
```

Opgave 2.16.6

Write an expression that rounds up a double value in variable d to an integer.

Besvarelse

- It is very important to notify that whenever we round numbers up, then we are automatically converting an number into a integer. So therefore, we don't need to write any declaration of using integer.
- Here we have assigned a value with 1,5 to double d and thereafter we have chosen to use the Math.package to round the numbers with the round.method.

```java
public class Main {
    public static void main(String[] args) {
        double d = 1.5;
        System.out.println((Math.round(d)));
    }
}
```

- The following result gives us 2.

```
C:\Users\vivek\.jdks\openjdk-18.0.
2

Process finished with exit code 0
```