Cross-platform benefits of the Java language

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1. Background: Different operating systems require different program languages.
2. What is operate system
3. Definition (Silberschatz, Galvin, & Gagne, 2013)
4. Function (Hansen, 1973)
5. What is programing language
6. Definition of program language (Rouse, 2007)
7. Examples of different computer languages (Kim, 2015)
8. What is WORE
   * 1. Why they cannot adjust to each other. (Chapman, 1999)
     2. Definition of portable (Rouse, 2005)
9. Problems: Programmers need to write the same program many times base on different platforms.
10. Situation before (Harold, 2015)

Thesis: Java solves the problem that computer programs are not portable, and it saves time for the programmers and increases their efficiency.

1. Solution: Java promotes a great concept that solves the problem of the nonportable codes, and the concept is implemented through three components: Java Virtual Machine (JVM), Java Runtime Environment (JRE), and Java Development Kit (JDK) (Gilbert, 1995).
2. Definition of WORE (Gilbert, 1995)
3. Java virtual machine (JVM)
4. Definition of virtual machine (Hansen, 1973)
5. How JVM works (Lindholm & Yellin, 1997)
6. Java Runtime Environment (JRE)
7. What is JRE (Rouse, 2005)

2. The relationship between JDK and JVM (Rouse, 2005) (Gilbert, 1995)

3. The relationship between JDK and JRE (Rouse, 2005) (Gilbert, 1995)

4. Why JRE is required (Jaschob & Riffle, 2012)

d. Java Development Kit (JDK)

1. What is JDK (Grehan, 1997)
2. Influence: The portability of Java changed the coding world.

a. Benefits of portability.

1. Definition of portability (Rouse, 2005)

2. Saves time and energy

3. Example of the benefit of WORE (Curtin, 1998)

b. Example of software based on Java

1. Minecraft (Duncan, 2011)

1. Evaluation: Java do have some limitations, but they are not essential.
2. Write once: test everywhere

1. Button

2. Version

3. Some addons will make it hard to move an application from one to the other.  (Gilbert, 1995)

1. Inefficiency of the program
2. performance (Lindholm & Yellin, 1997)
3. The hardware today meets the majority of requirements (Harold, 2015)
4. Conclusion: Even though Java has some limitations, it is a revolutionary computer language that solve an essential problem in the programming field.
5. Comment
6. Recommendation

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