Isilah Form ini dan cetaklah, untuk dikumpulkan sebelum penilaian pada hari Kamis 5 April 2016

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Ass Mentor : Christ Angga Saputra

# Diagram Kelas

## Diagram Kelas CPP

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## Diagram Kelas JAVA (aplikasi baru)



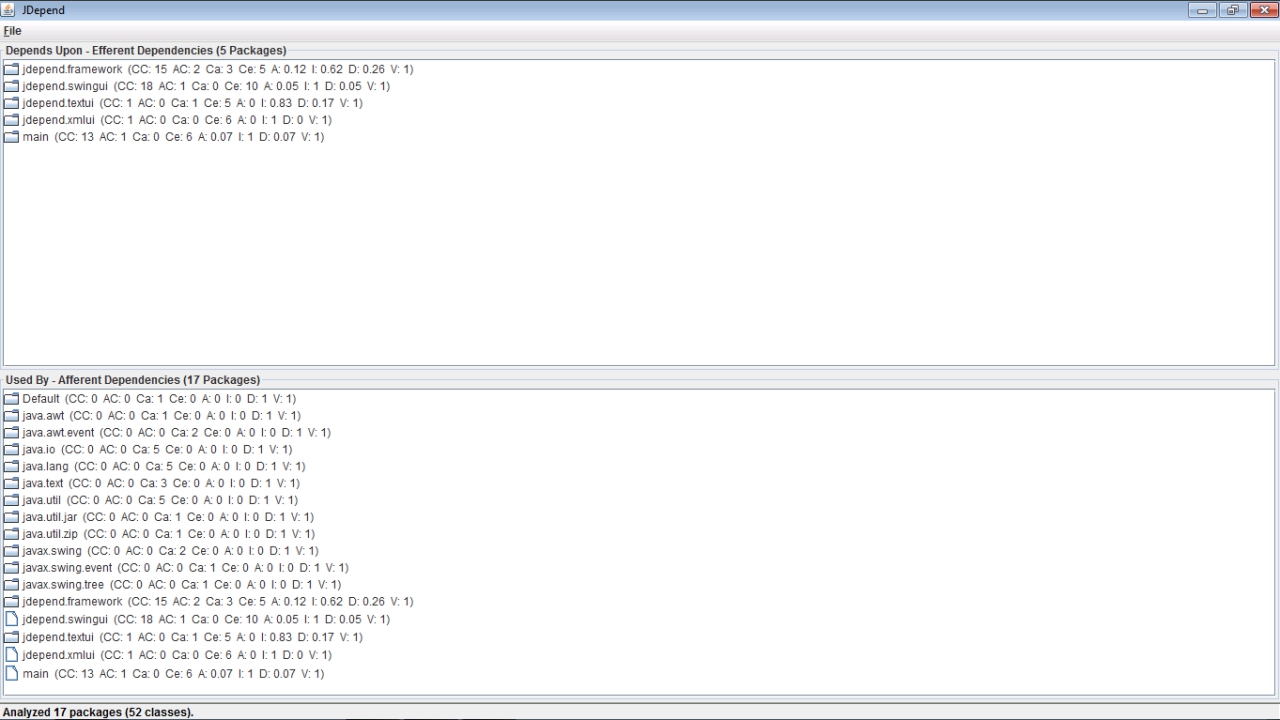
## Ulasan Redesign

Pada diagram CPP kelas List kami menggunakan operator [], sedangkan pada Java kami menggantinya menjadi fungsi get() dengan spesifikasi yang sama. Pada diagram CPP kami mempunyai operator reference by value (&) sedangkan pada Java, operator ini dihilangkan. Perubahan lainnya adalah pada penggunaan vector. Pada CPP, STL kami terapkan dengan vector, sedangkan pada Java kami menggunakan ArrayList. Perubahan ini disebabkan ArrayList dianggap dapat lebih cepat. Terdapat juga perubahan dimana bilangan untuk kekuatan diset menjadi suatu static final int. Penambahan ctor tanpa parameter untuk class Human dan Monster dilakukan pada konversi. Selain itu, pada diagram java terdapat suatu kelas tambahan yaitu kelas KeyListeners yang berfungsi untuk menerima input key; dimana pada CPP, implementasi penerimaan key terdapat pada Main.

# Implementasi Perubahan

| **Package** | **Nama Kelas CPP** | **Nama Method** | **Nama Kelas JAVA** | **Nama Method JAVA** | **Reuse**  **Ya/Tidak** | **Deskripsi Perubahan** |
| --- | --- | --- | --- | --- | --- | --- |
| Main | Main | AddMakhluk(ListMakhluk) | Main | addMakhluk(ListMakhluk) | Ya |  |
| Init(ListMakhluk) | init(final ListMaklhuk) | Ya |
| moveL(int) | moveL(final int) | Ya |
| isArtist(Makhluk) | - | Tidak | Dihapus |
| isGhost(Makhluk) | - | Tidak |
| isMilitary(Makhluk) | - | Tidak |
| isHuman(Makhluk) | - | Tidak |
| mainIsInVector(int,vector<int>) | - | Tidak |
| GetKunci() | KeyListeners | getKunci() | Tidak | Mengubah kelas utama |
| - | - | KeyListeners(final string) | Tidak | Menambah KeyListeners |
| - | keyReleased(final KeyEvent) | Tidak |
|  | keyTyped(final KeyEvent) | Tidak |
| - | keyPressed(final KeyEvent) | Tidak |
| Makhluk | SetdeltaX(int) | Makhluk | setdeltaX(final int) | Ya | Mengubah nama parameter |
| SetdeltaY(int) | setdeltaY(final int) | Ya |
| SetKekuatan(int) | setKekuatan(final int) | Ya |
| SetShape(char) | setShape(final char) | Ya |
| - | addIdGlobal() | Tidak | Menambahkan protected void untuk menggantikan protected variable |
| - | getIdGlobal() | Tidak |
| - | setId(final int) | Tidak |
| GetId() | getId() | Ya |  |
| GetX() | getX() | Ya |
| GetY() | getY() | Ya |
| GetdeltaX() | getdeltaX() | Ya |
| GetdeltaY() | getdeltaY() | Ya |
| GetKekuatan() | getKekuatan() | Ya |
| GetShape() | getShape() | Ya |
| SetX(int) | setX(final int) | Ya | Mengubah nama parameter |
| SetY(int) | setY(final int) | Ya |
| operator==(const Makhluk&) | compare(final Makhluk) | Ya | Mengubah operator overloading menjadi function |
| virtual move() = 0 | abstract move() | Ya |  |
| Human | SetUmur(int) | Human | setUmur(final int) | Ya | Mengubah nama parameter |
| - | Human() | Tidak | Menambah ctor tanpa parameter |
| Human(int, int) | Human(final int, final int) | Ya | Menggunakan method addIdGlobal, getIdGlobal(), dan setId |
| GetUmur() | getUmur() | Ya |  |
| Add(Umur) | addUmur() | Ya |
| move() | move() | Ya |
| Monster | - | Monster | Monster() | Tindak | Menambah ctor tanpa parameter |
| Monster(int, int) | Monster(final int, final int) |  | Menggunakan method addIdGlobal, getIdGlobal(), dan setId |
| move() | move() | Ya |  |
| GhostBuster | GhostBuster(int, int) | GhostBuster | GhostBuster(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| Knight | Knight(int, int) | Knight | Knight(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| Artist | Artist(int, int) | Artist | Artist(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| sing() | sing() | Ya | Tranlasi cpp ke java |
| Military | Military(int, int) | Military | Military(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| setTurn(int) | setTurn(final int) | Ya | Mengganti nama parameter |
| getTurn() | getTurn() | Ya |  |
| camouflage() | camouflage() | Ya |
| uncamouflage() | uncamouflage() | Ya |
| Alien | Alien(int, int) | Alien | Alien(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| Predator | Predator(int, int) | Predator | Predator(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| Ghost | Ghost(int, int) | Ghost | Ghost(final int, final int) | Ya | Mengganti input kekuatan dengan konstanta |
| spook() | spook() | Ya | Tranlasi cpp ke java |
| Board | startBertarung(ListMakhluk, vector<int>) | Board | startBertarung(ListMakhluk, ArrayListr<int>) | Ya | Mengubah vector<int> menjadi ArrayList<Integer> dan penggunaan operator[] pada ListMakhluk menjadi get() |
| Bertarung(int, int, ListMakhluk, vector<int>) | bertarung(int, int, ListMakhluk, ArrayList<int>) | Ya |
| DeleteHasilBertarung(ListMakhluk, vector<int>) | deleteHasilBertarung(ListMakhluk, ArrayList<int>) | Ya |
| SetElementBoard(int, int, int, int) | setElementBoard(int, int, int, int) | Ya |
| AddtoBoard(ListMakhluk) | addtoBoard(ListMakhluk) | Ya |
| Board(int, int, int) | Board(int, int, int) | Ya |
| PrintBoard(ListMakhluk, ostream) | printBoard(ListMakhluk, string) | Ya |
| GetElementPapan(int, int, int) | getElementPapan(int, int, int) | Ya |
| GhostBusterMeetGhost(vector<int>, ListMakhluk) | ghostBusterMeetGhost(ArrayList<int>, ListMakhluk) | Ya |
| isInVector(int, vector<int>) | isInVector(int, ArrayList<int>) | Ya |
| ListMakhluk | ListMakhluk() | ListMakhluk | ListMakhluk() | Tidak | Menggunakan ArrayList sebagai STL |
| isListEmpty() | isListEmpty() | Tidak | Menggunakan fungsi bawaan ArrayList |
| neff() | neff() | Tidak |
| search(Makhluk) | search(final Makhluk) | Tidak |
| insert(Makhluk) | insert(final Makhluk) | Tidak |
| delete(int) | delete(final int) | Tidak |
| operator[](const int) | get(final int) | Tidak | Mengubah operator overloading menjadi function dan menggunakan fungsi bawaan ArrayList |

# Pengukuran Metriks Aplikasi



# Pengukuran Kualitas Kode Aplikasi

Starting audit...

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Alien.java:0: Missing package-info.java file. [JavadocPackage]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Artist.java:12: Line has trailing spaces. [RegexpSingleline]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:1: Using the '.\*' form of import should be avoided - java.util.\*. [AvoidStarImport]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:2: Using the '.\*' form of import should be avoided - java.io.\*. [AvoidStarImport]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:18: Line is longer than 80 characters (found 87). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:45: Line is longer than 80 characters (found 115). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:64: Line is longer than 80 characters (found 93). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:65: Line is longer than 80 characters (found 91). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:70: Line is longer than 80 characters (found 98). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:82: Line is longer than 80 characters (found 84). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:102: Line is longer than 80 characters (found 109). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:109: Line is longer than 80 characters (found 111). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:112: Line is longer than 80 characters (found 151). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:181: Line is longer than 80 characters (found 97). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:213:14: Variable 'bLength' must be private and have accessor methods. [VisibilityModifier]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:218:14: Variable 'bHeight' must be private and have accessor methods. [VisibilityModifier]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:223:14: Variable 'bWidth' must be private and have accessor methods. [VisibilityModifier]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:242: Line is longer than 80 characters (found 95). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\Board.java:260: Line is longer than 80 characters (found 107). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\KeyListeners.java:6: Using the '.\*' form of import should be avoided - java.io.\*. [AvoidStarImport]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\KeyListeners.java:68:17: '200' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\KeyListeners.java:68:22: '100' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\KeyListeners.java:123:23: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:0: File does not end with a newline. [NewlineAtEndOfFile]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:1: Using the '.\*' form of import should be avoided - java.util.\*. [AvoidStarImport]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:2: Using the '.\*' form of import should be avoided - java.io.\*. [AvoidStarImport]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:7:1: Utility classes should not have a public or default constructor. [HideUtilityClassConstructor]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:32:34: '11' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:45:29: '3' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:48:29: '4' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:48:43: '5' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:51:29: '6' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:51:43: '7' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:54:29: '8' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:54:43: '9' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:57:29: '10' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:57:44: '11' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:80: Line is longer than 80 characters (found 96). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:82: Line is longer than 80 characters (found 98). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:85: Line is longer than 80 characters (found 97). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:87: Line is longer than 80 characters (found 99). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:96:46: Array brackets at illegal position. [ArrayTypeStyle]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:96:57: Expected @throws tag for 'InterruptedException'. [JavadocMethod]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:97:27: '3' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:97:30: '3' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:97:33: '3' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:113: Line is longer than 80 characters (found 81). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:114: Line is longer than 80 characters (found 86). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:121: Line is longer than 80 characters (found 105). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:134: Line is longer than 80 characters (found 124). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:137: Line is longer than 80 characters (found 125). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:144: Line is longer than 80 characters (found 183). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:151:43: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:153: Line is longer than 80 characters (found 84). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:160:30: '300' is a magic number. [MagicNumber]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:164:33: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:166: Line is longer than 80 characters (found 137). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:166:33: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:166:127: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:189: Line is longer than 80 characters (found 142). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:196:37: Expression can be simplified. [SimplifyBooleanExpression]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:219: Line is longer than 80 characters (found 130). [LineLength]

[ERROR] D:\ITB\IF\Sem 4\OOP\Java\Tubes 2\Final + CheckStyle\MakhlukMain.java:227:21: Expression can be simplified. [SimplifyBooleanExpression]

Audit done.

# Dokumentasi Rinci Kelas

Dikumpulkan secara online.