PENGEMBANGAN APLIKASI PERMAINAN *ARCADE-SHOOTER*



oleh :
10107661
DECKY ISKANDAR

UNIVERSITAS KOMPUTER INDONESIA
JURUSAN TEKNIK INFORMATIKA

Bandung, 20 Februari 2012

Latar Belakang

- Potensi
- Evolusi
- Pengembangan

Identifikasi Masalah

- Bagaimana mengembangkan aplikasi permainan *arcade-shooter* supaya lebih menarik bagi para penggunanya ?

Maksud

- Untuk mengembangkan aplikasi permainan *arcade-shooter* supaya lebih menarik bagi penggunanya.

Tujuan

- Untuk menumbuhkan kembali dan meningkatkan tingkat ketertarikan pengguna aplikasi permainan terhadap permainan ber-*genre arcade-shooter*.

Ruang Lingkup Kajian

- Menerapkan *game* AI *finite state machine* dengan *bounding rectangle collision detection* sebagai pemicu *event*-nya.
- Memperbaharui sumber daya gambar.
- Memperbaharui sumber daya audio.
- Menambahkan variasi entitas musuh.
- Memperbaiki kontrol navigasi pesawat.

Batasan Masalah

- Alur permainan mirip permainan Asteroid
- Berbasis Java Applet
- Dokumentasi dengan UML 2.0
- Game AI : Finite State Machine
- Bounding Box Collision Detection
- Event-driver : collision detection
- Satu tingkat permainan dengan arena permainan statis
- FSM diterapkan pada : Pesawat, Peluru, dan Asteroid
- Aset dibuat secara pribadi dan diunduh dari Internet
- Aplikasi berjalan secara lokal pada sistem yang terpasang JVM

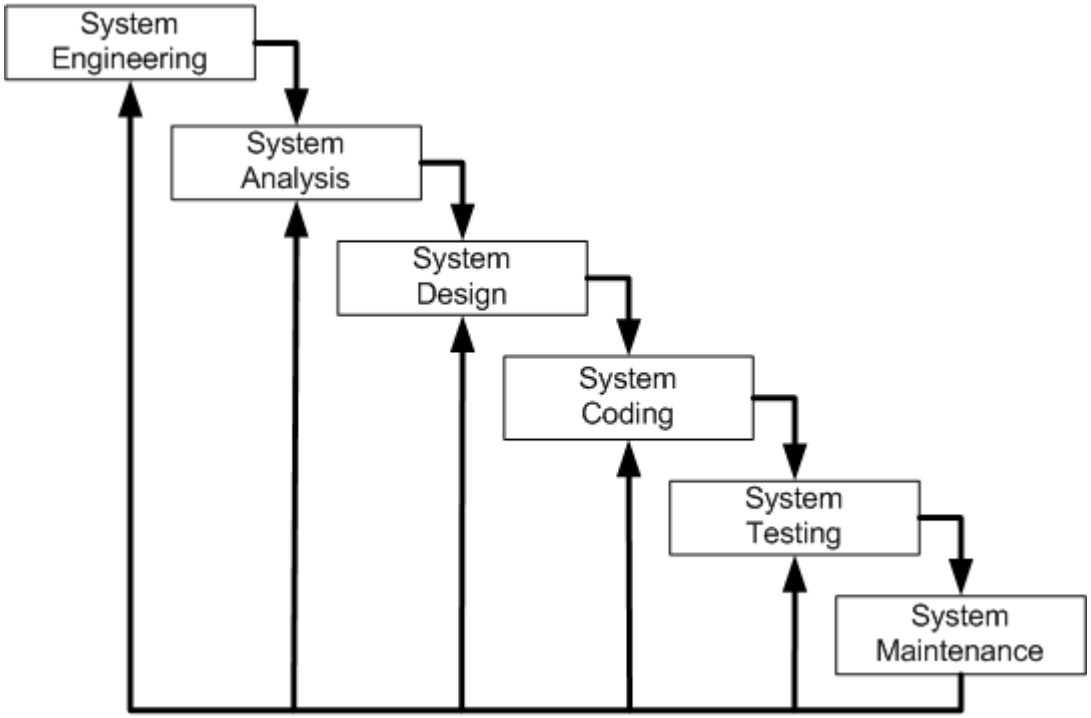
Metodologi Penelitian

- Pengumpulan Data
  - Studi Literatur
  - Observasi
  - Kuesioner

Metodologi Penelitian

- Pengembangan Perangkat Lunak
- Model Waterfall
  1. Pengumpulan Kebutuhan
  2. Analisis
  3. Perancangan
  4. Implementasi
  5. Pengujian

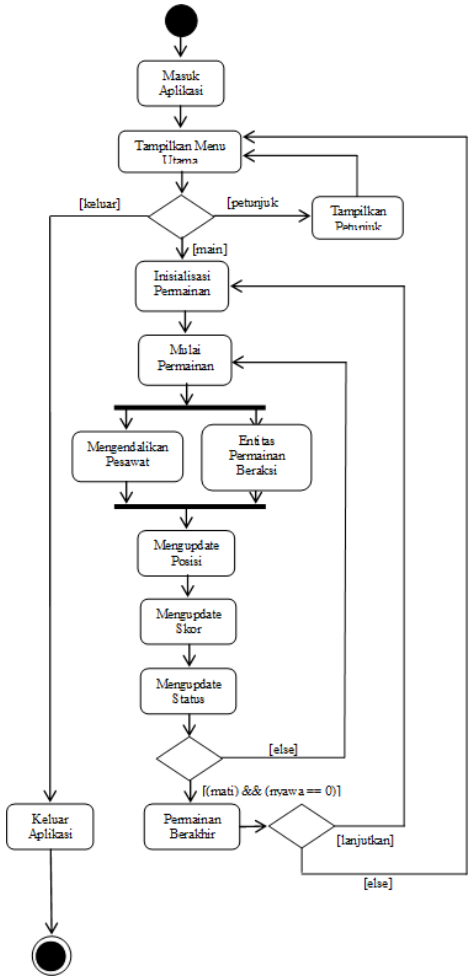
Model Waterfall



Analisis

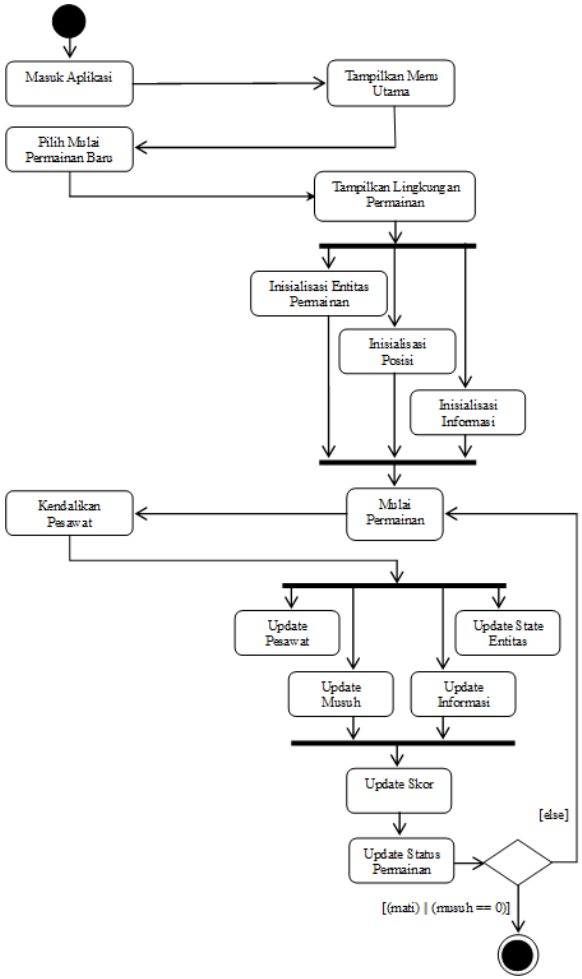
- Activity Diagram Aplikasi Lama
- Activity Diagram ArkAId XIV
- Class Diagram
- Use Case Diagram
- Sequence Diagram
- State Diagram

Activity Diagram



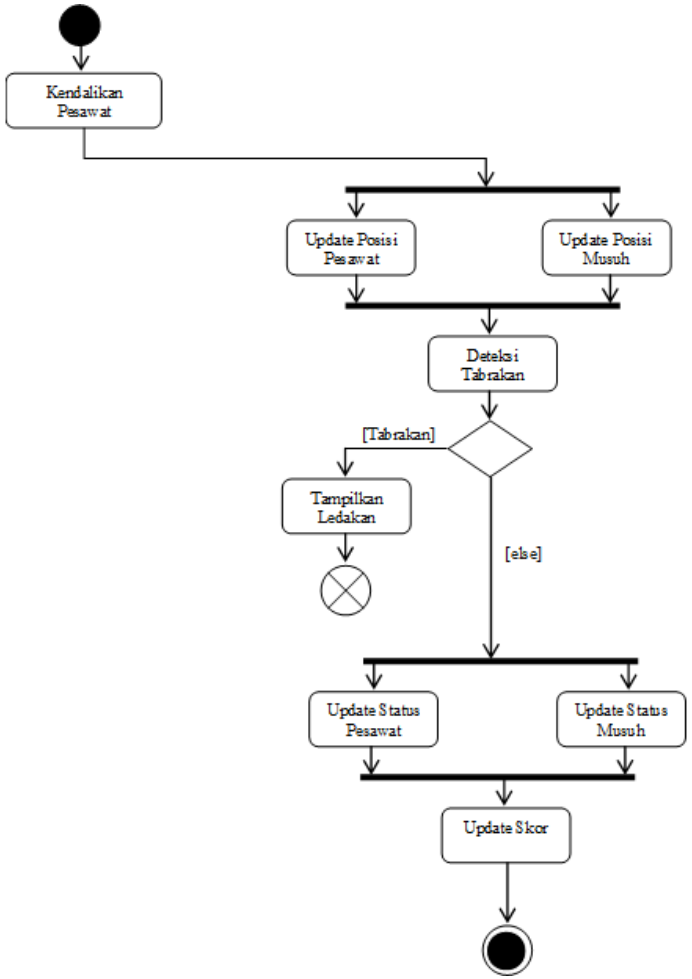
Skenario Permainan
arcade-shooter
Konvensional

Activity Diagram



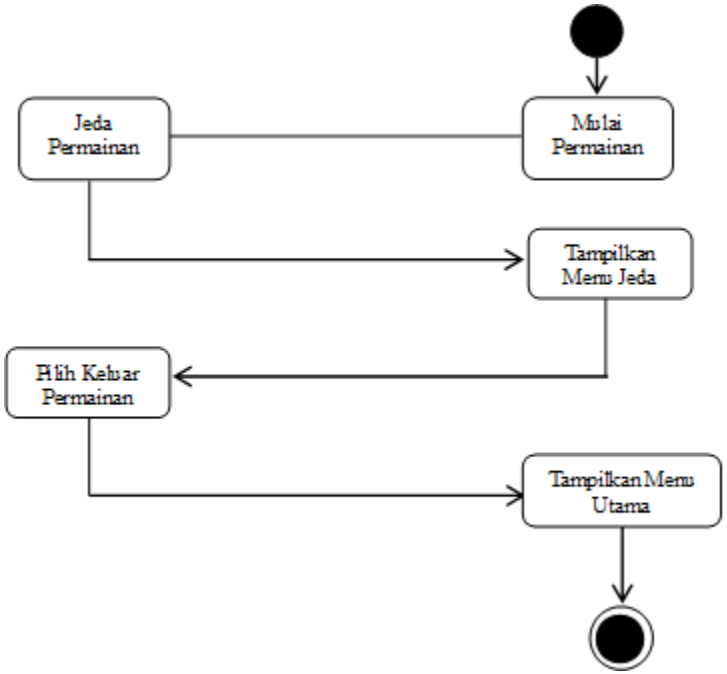
Metode Mulai Permainan Baru

Activity Diagram



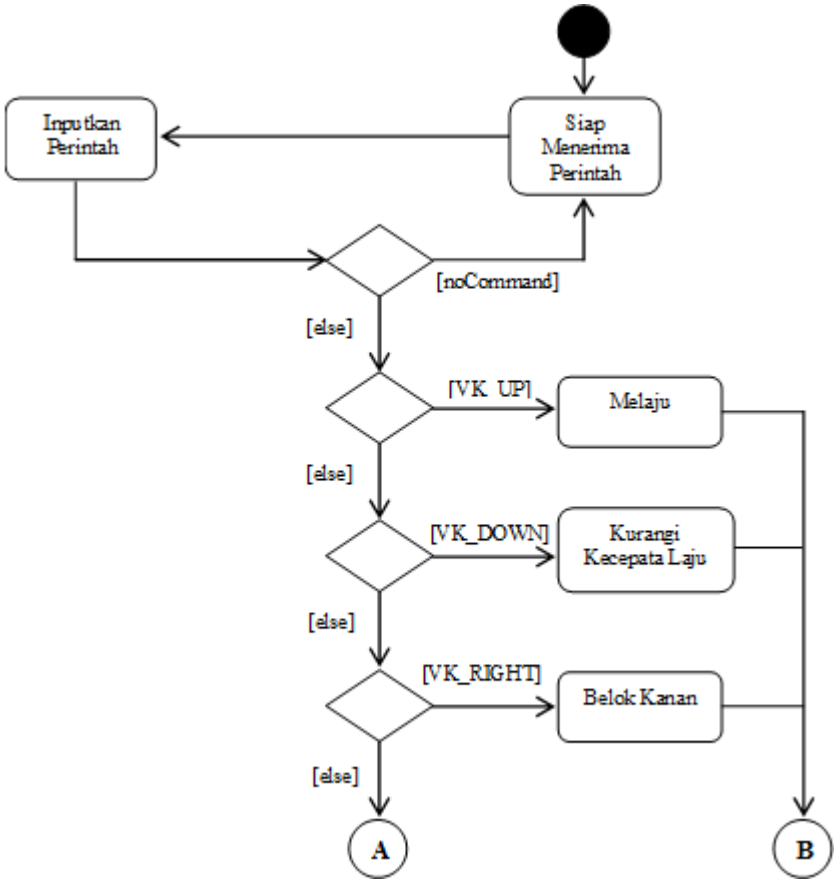
Alternatif Skenario #1

Activity Diagram

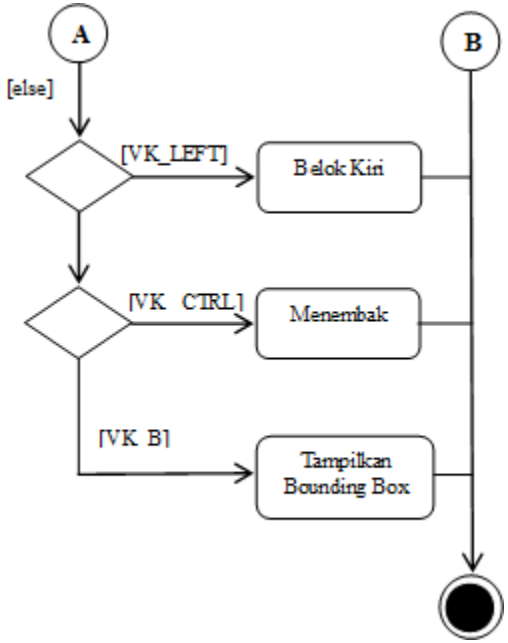


Alternatif Skenario #2

Activity Diagram

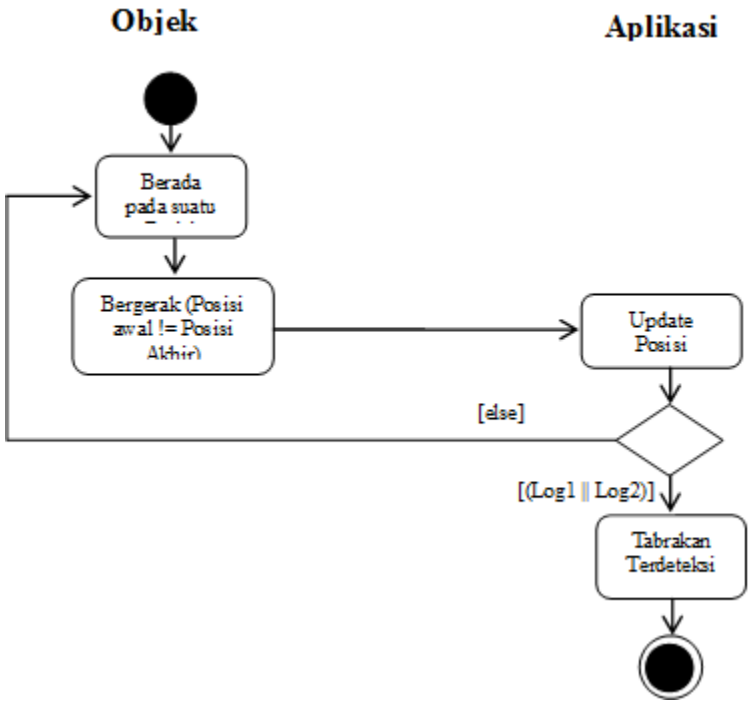


Activity Diagram



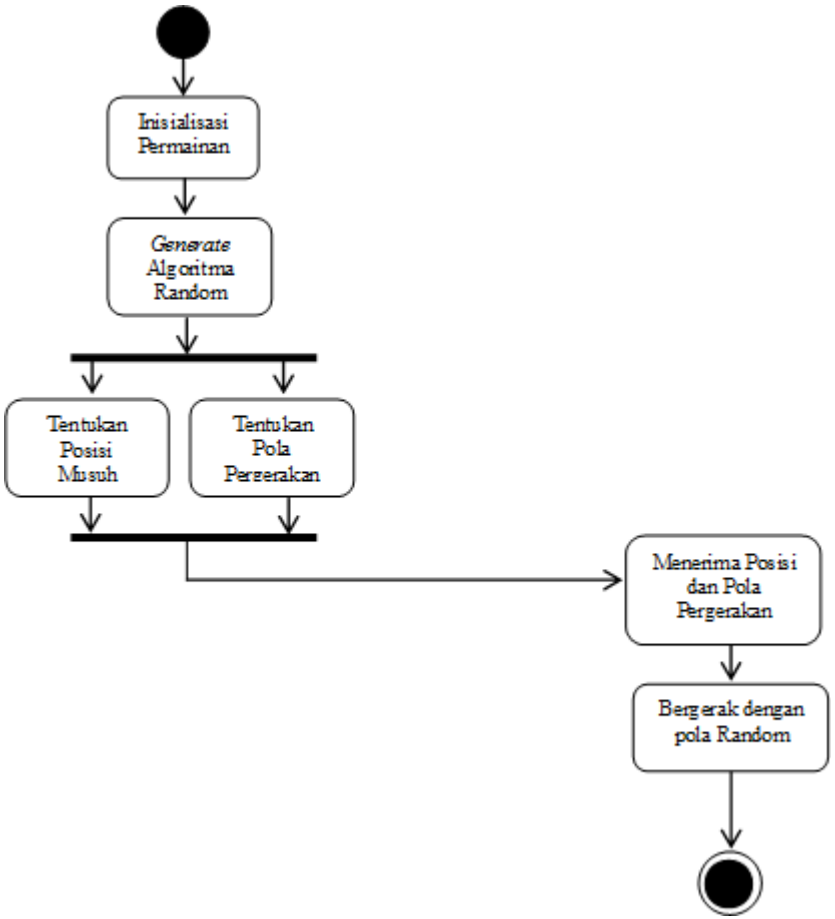
Metode
Pengendalian Objek
Pesawat

Activity Diagram



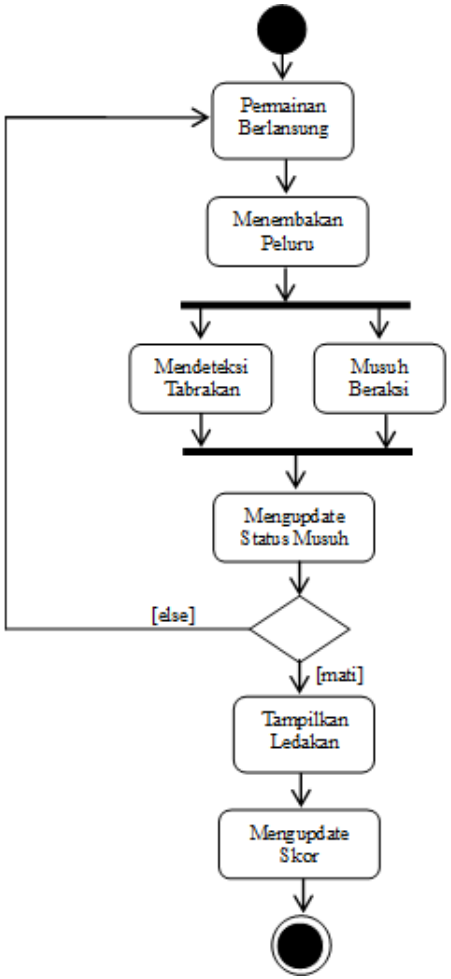
Metode
Deteksi Tabrakan

Activity Diagram



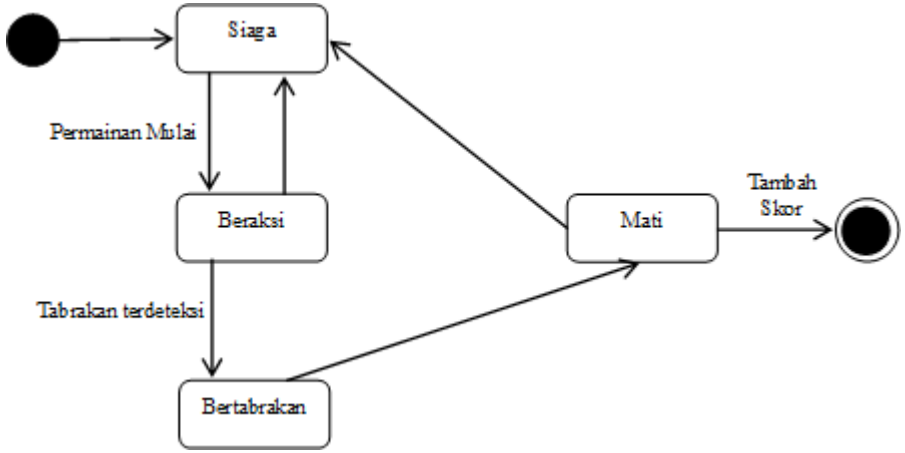
Metode Pergerakan
Entitas Musuh

Activity Diagram



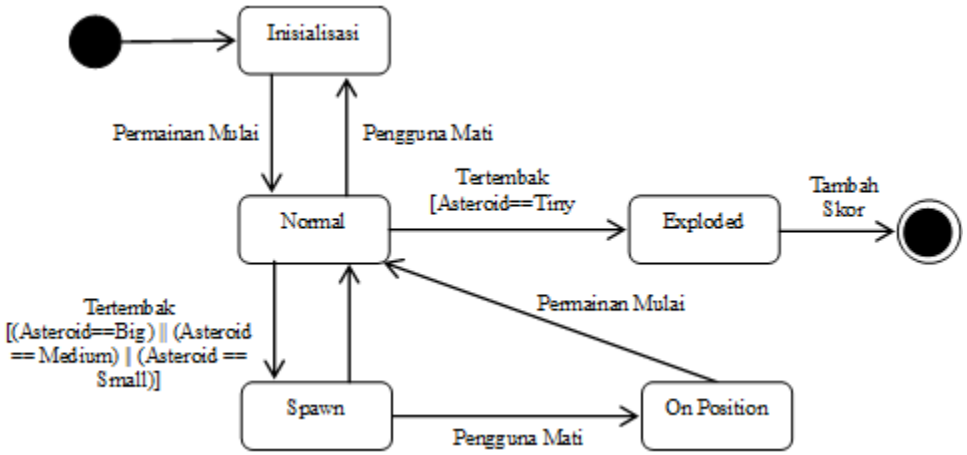
Metode Menembak Musuh

State Diagram



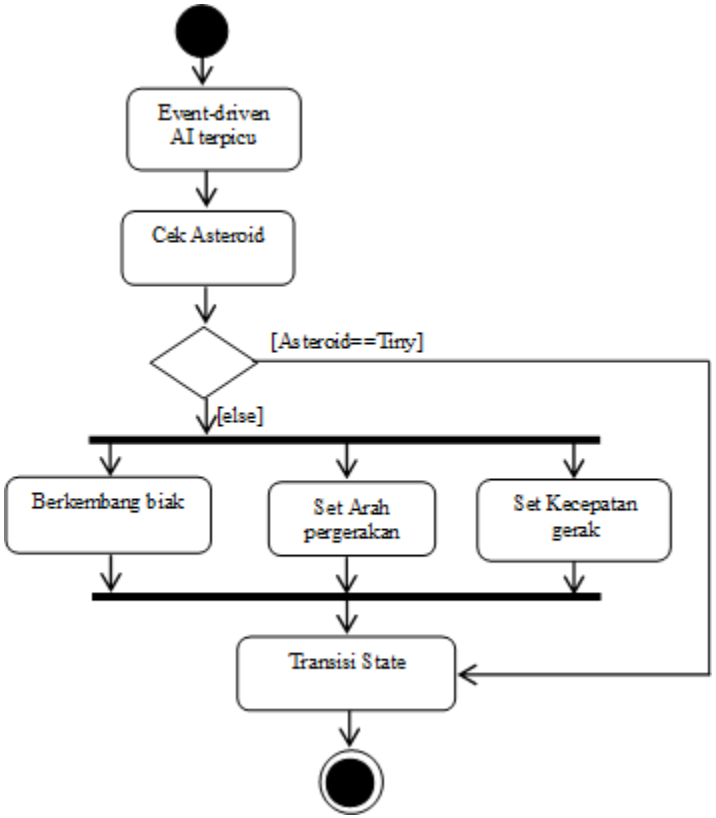
Entitas Permainan
Aplikasi Konvensional

Finite State Machine



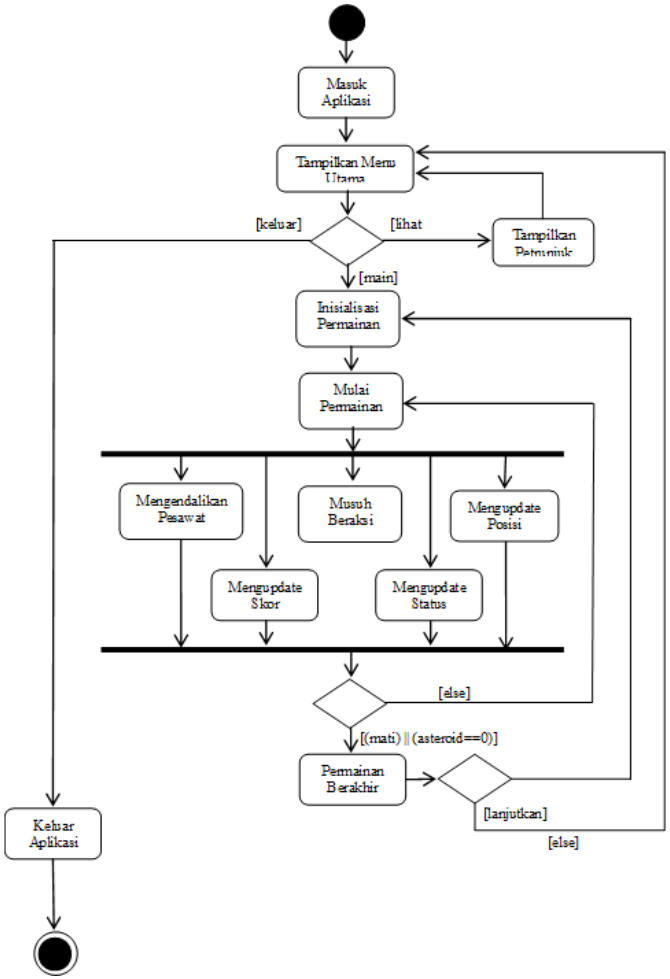
Asteroid Spawned

Activity Diagram ArkAId XIV



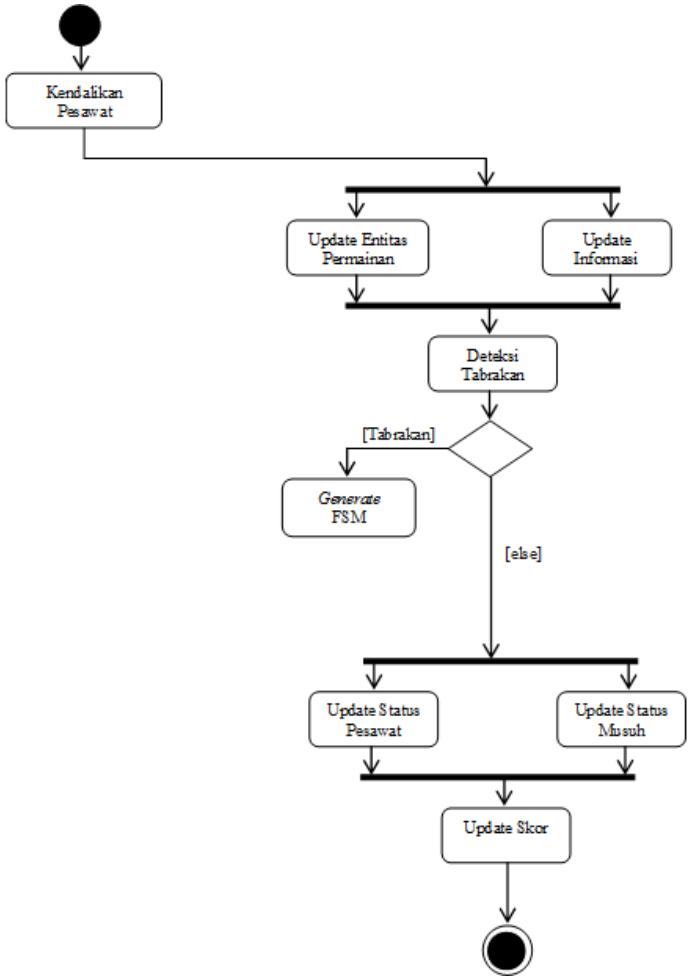
Asteroid Spawned

Activity Diagram ArkAId XIV



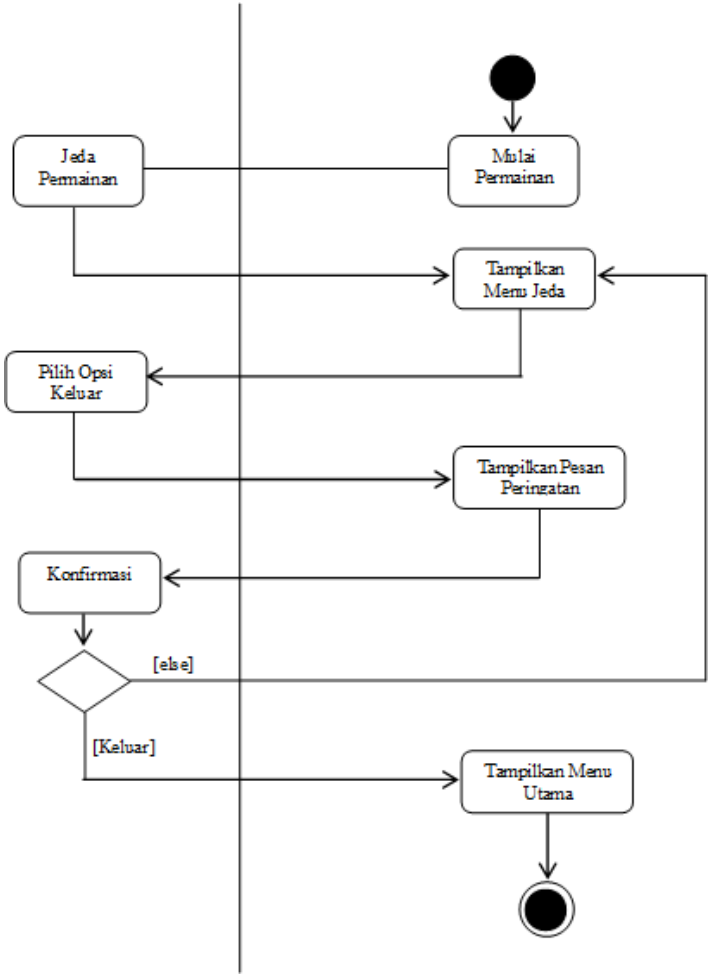
Skenario
ArkAId XIV

Activity Diagram ArkAId XIV



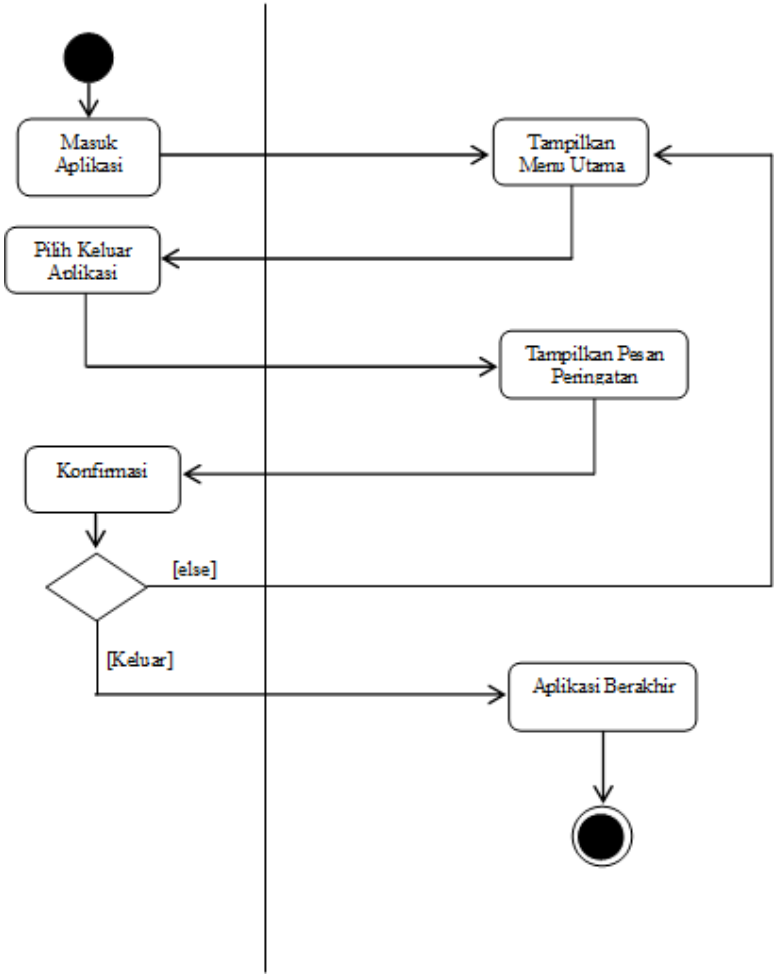
Alternatif Skenario
#1

Activity Diagram ArkAId XIV



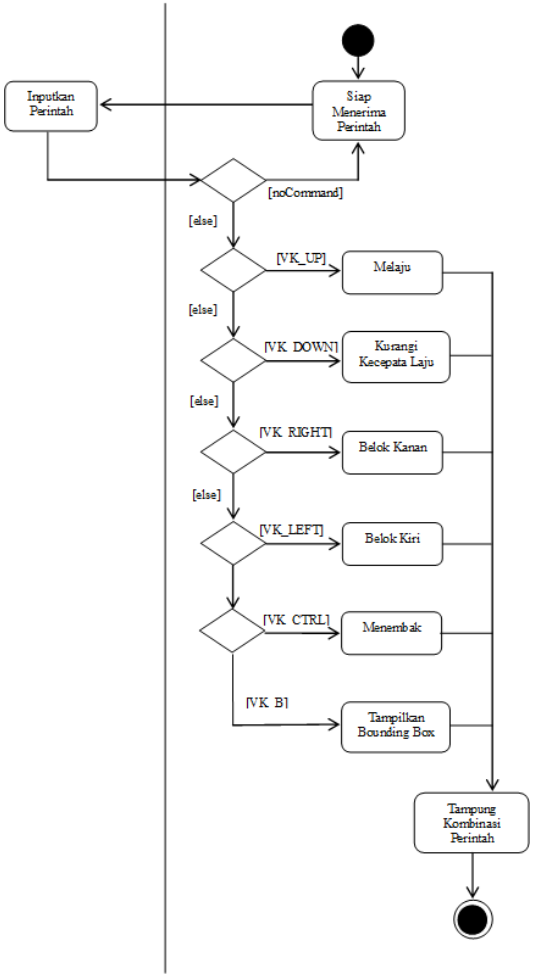
Alternatif Skenario #2

Activity Diagram ArkAId XIV



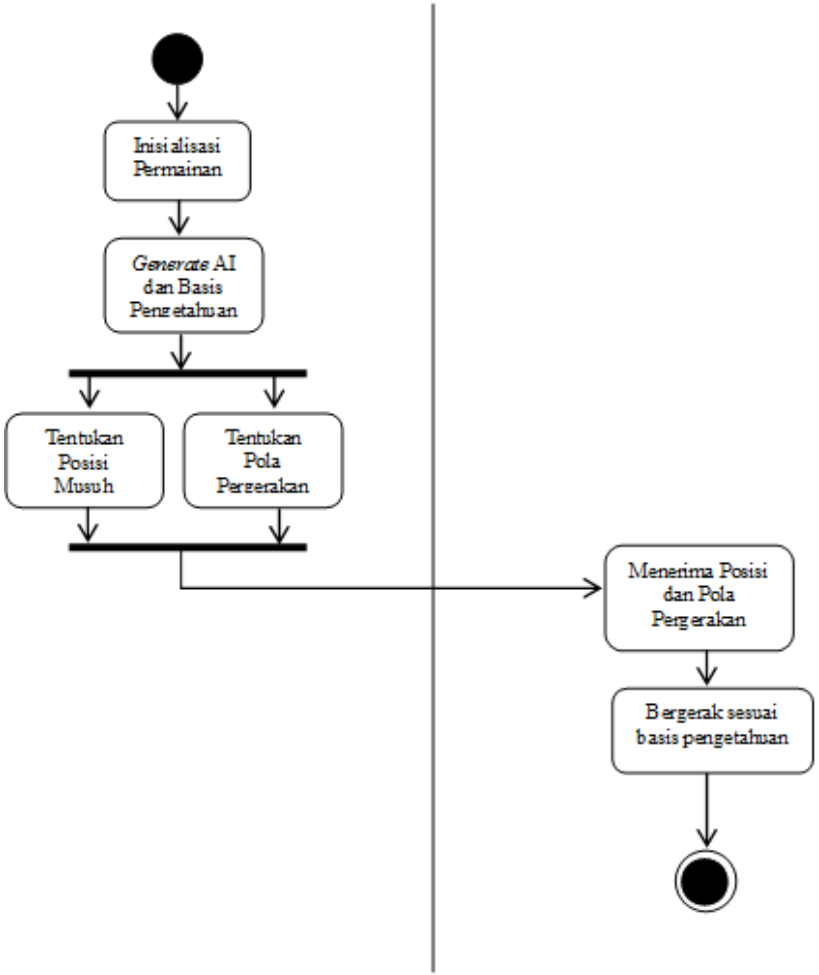
Alternatif Skenario #4

Activity Diagram ArkAId XIV



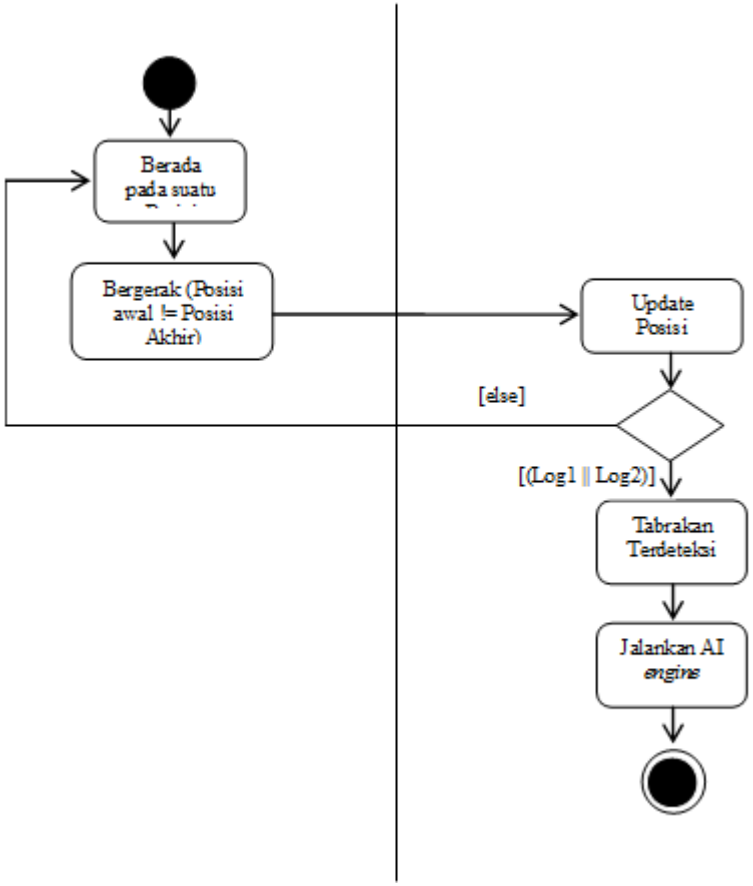
Kontrol Pesawat

Activity Diagram ArkAId XIV



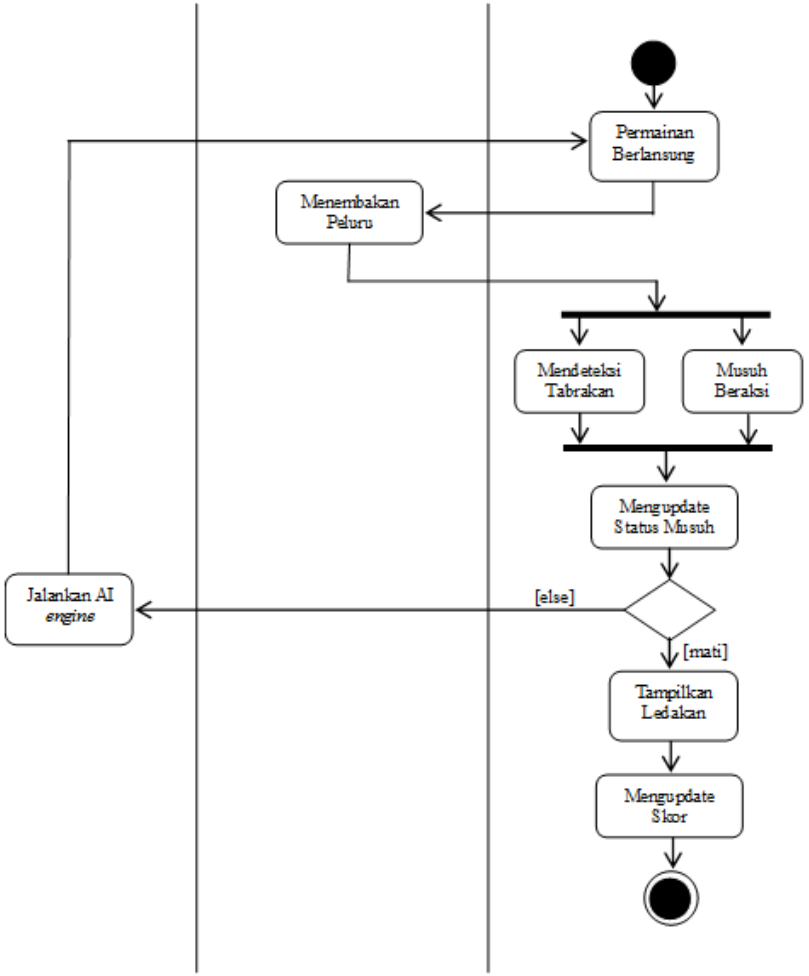
Pergerakan Musuh

Activity Diagram ArkAId XIV



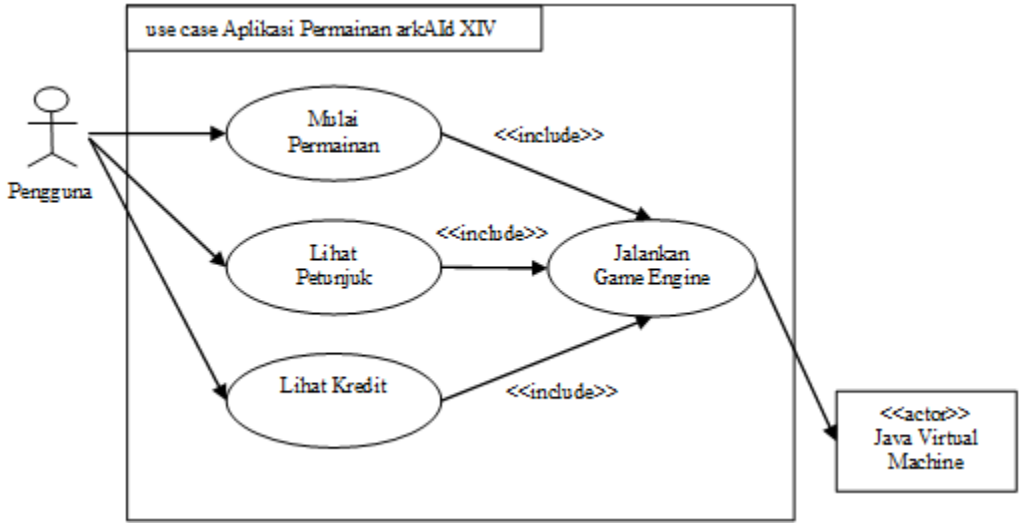
Metode Deteksi Tabrakan

Activity Diagram ArkAId XIV

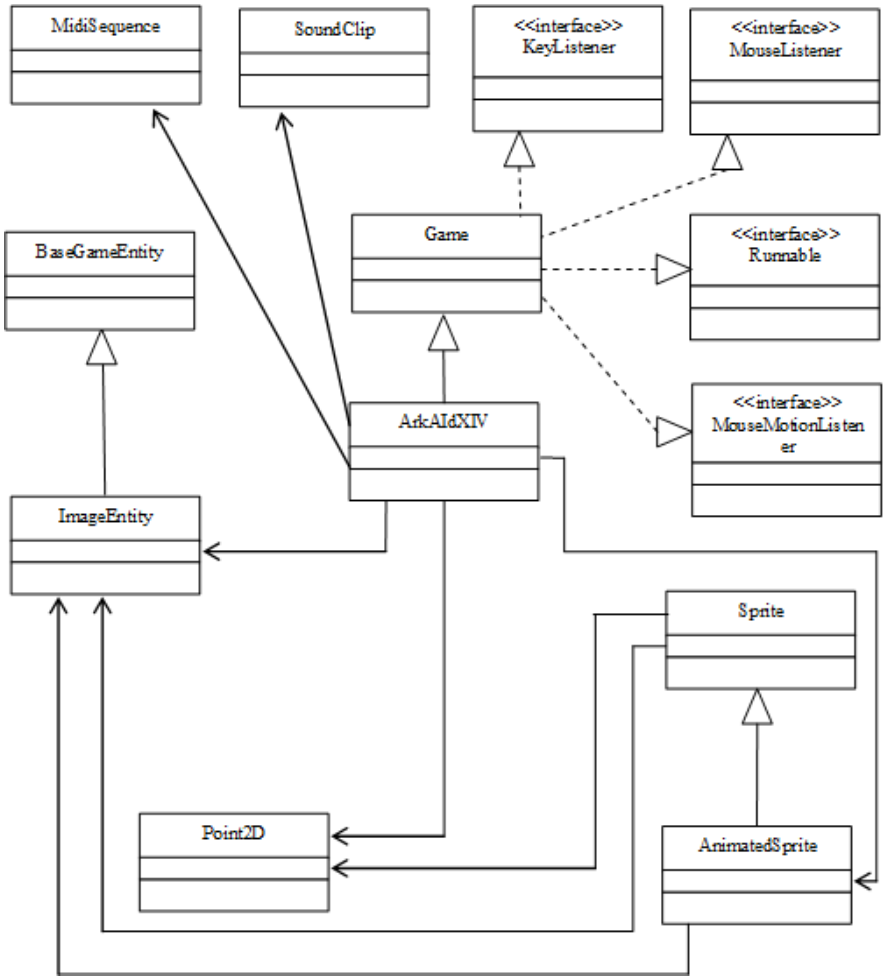


Metode Menembak Musuh

Use Case Diagram

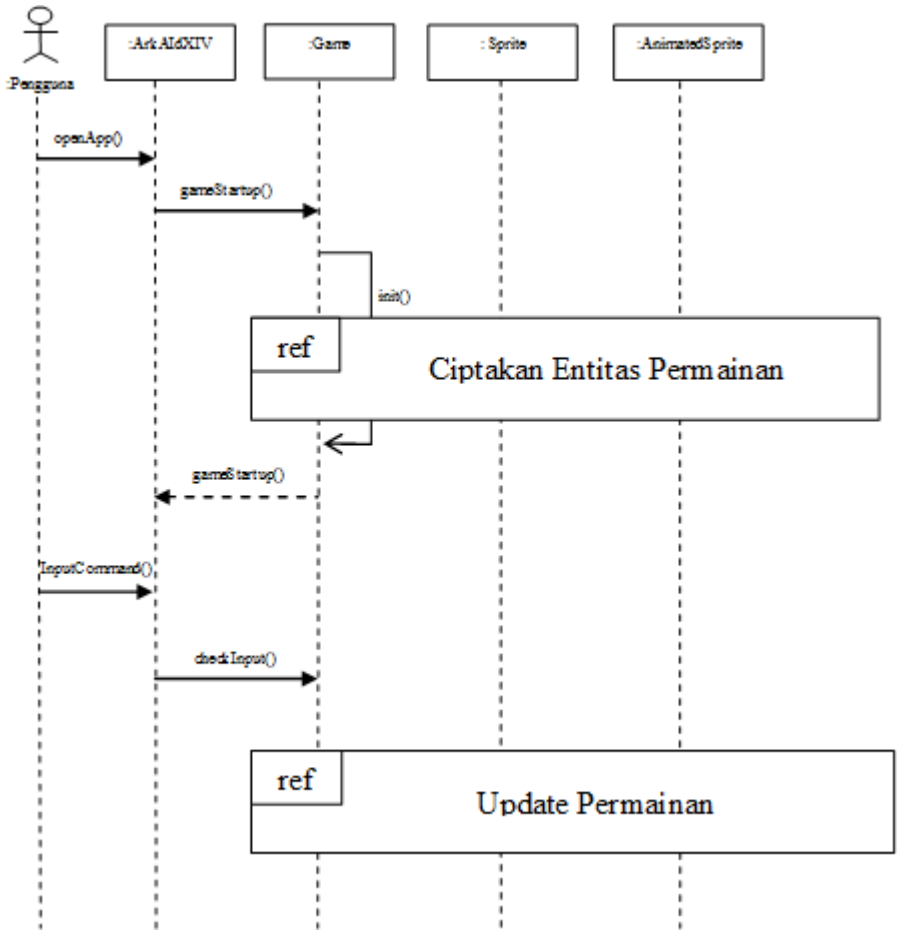


Class Diagram



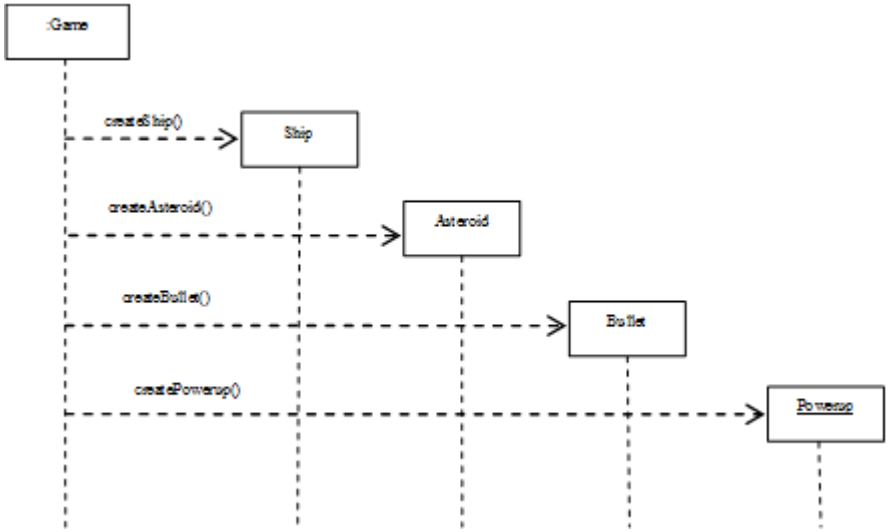
ArkAId XIV

Sequence Diagram



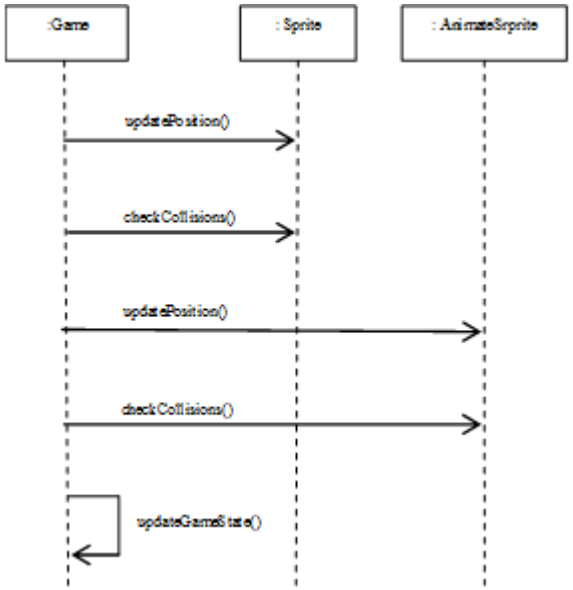
sd Mulai Permainan

Sequence Diagram



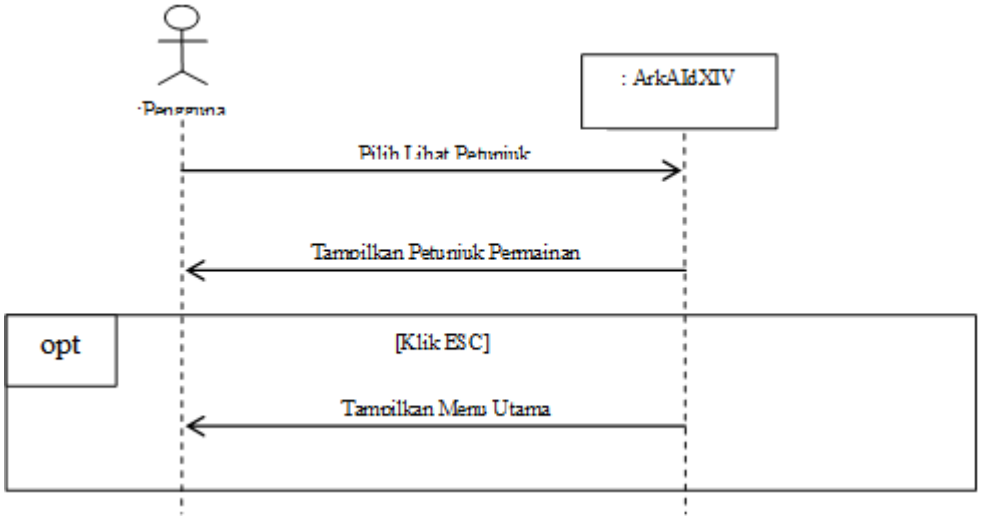
sd Ciptakan Entitas Permainan

Sequence Diagram



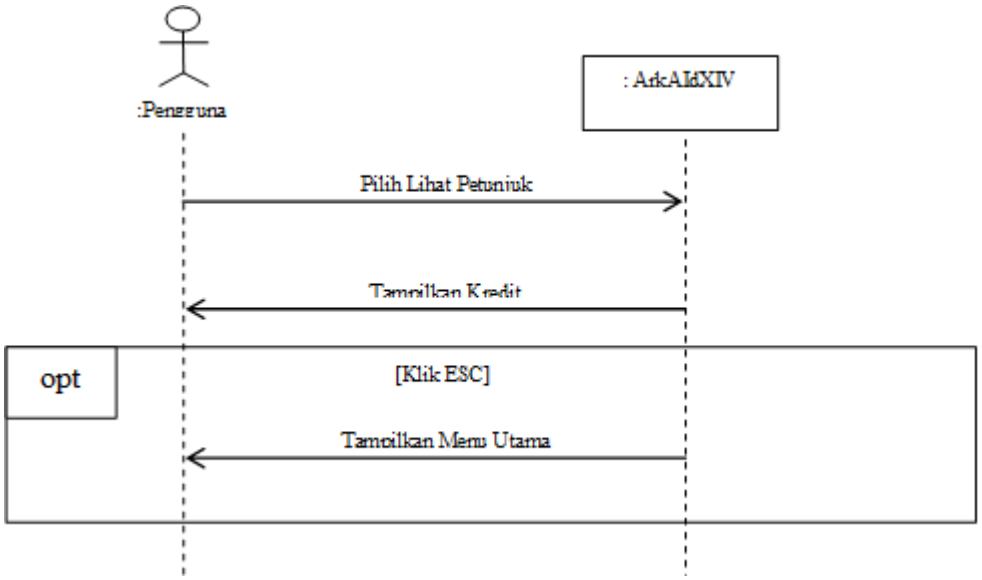
[REF] sd Update Permainan

Sequence Diagram



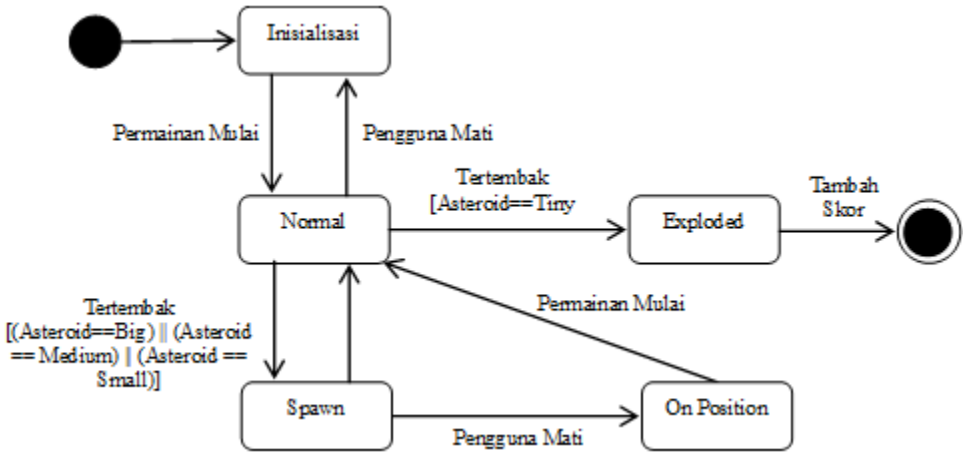
sd Lihat Petunjuk

Sequence Diagram



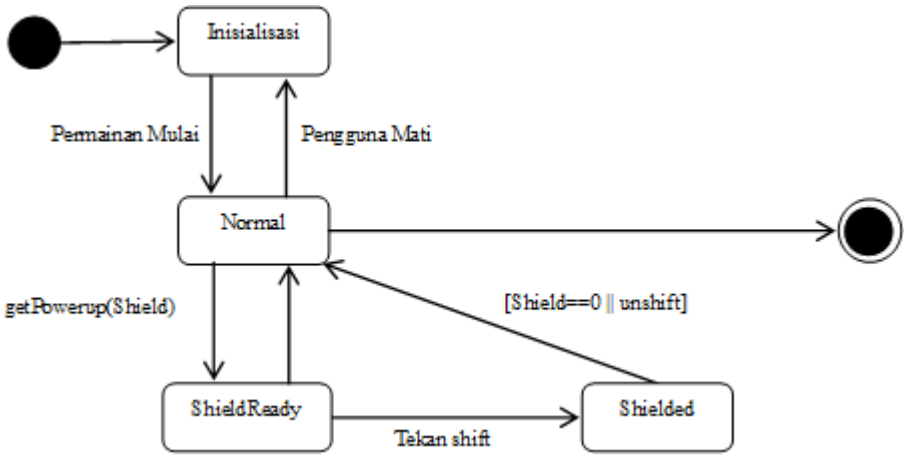
sd Lihat Kredit

State Diagram



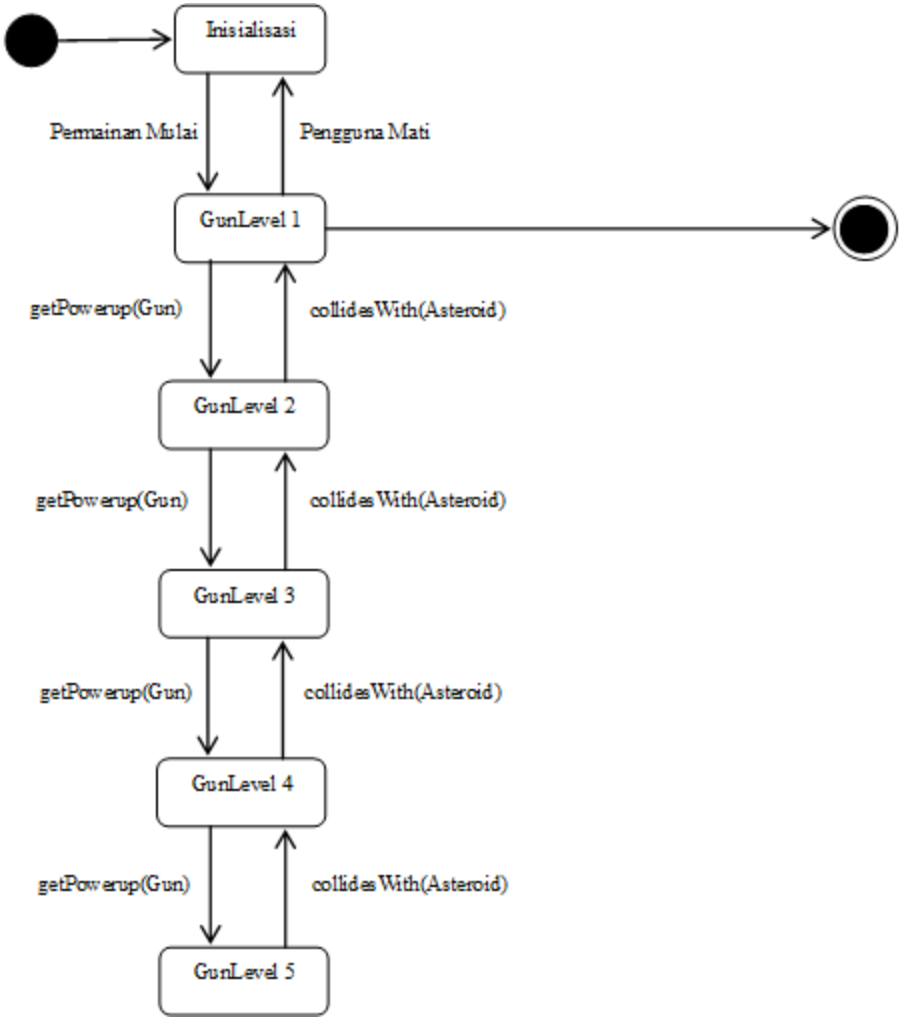
Asteroid Spawned

State Diagram



Ship Shielded

State Diagram

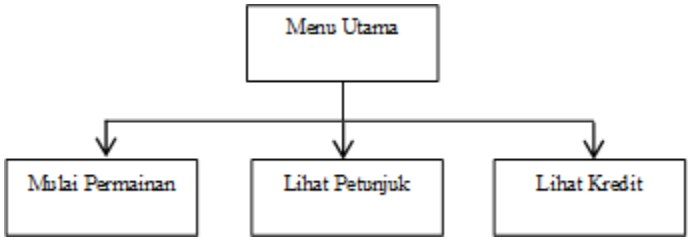


Bullet Upgrade

Perancangan

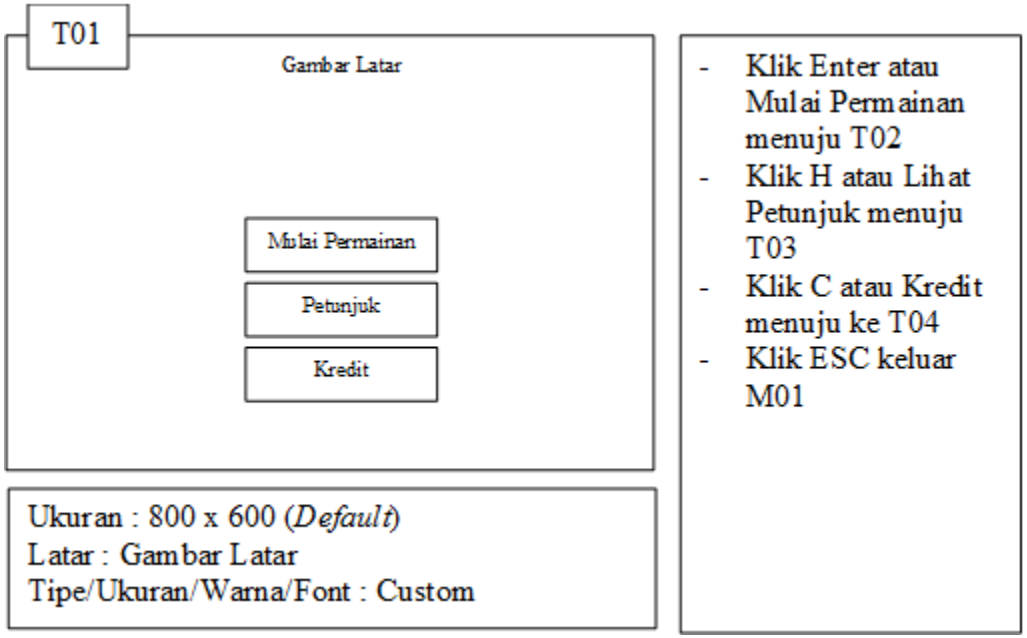
- Arsitektur Menu
- Antarmuka Menu Utama
- Antarmuka Mulai Permainan
- Antarmuka Lihat Petunjuk
- Antarmuka Lihat Kredit
- Pesan Peringatan Keluar Aplikasi
- Pesan Peringatan Kelur Permainan
- Jaringan Semantik

Arsitektur Menu



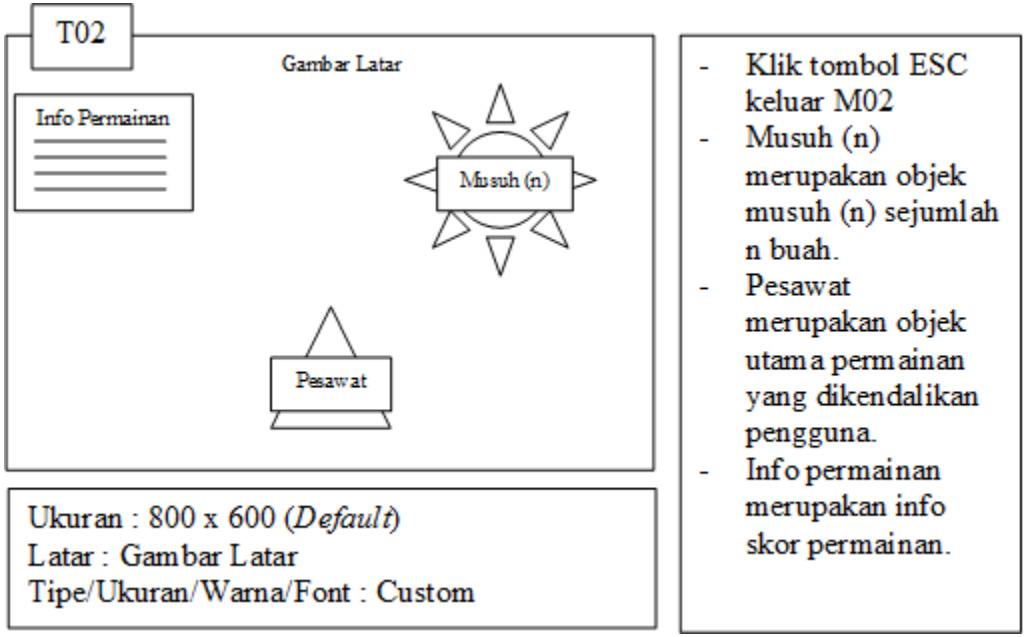
Arsitektur Menu
ArkAId XIV

Antarmuka



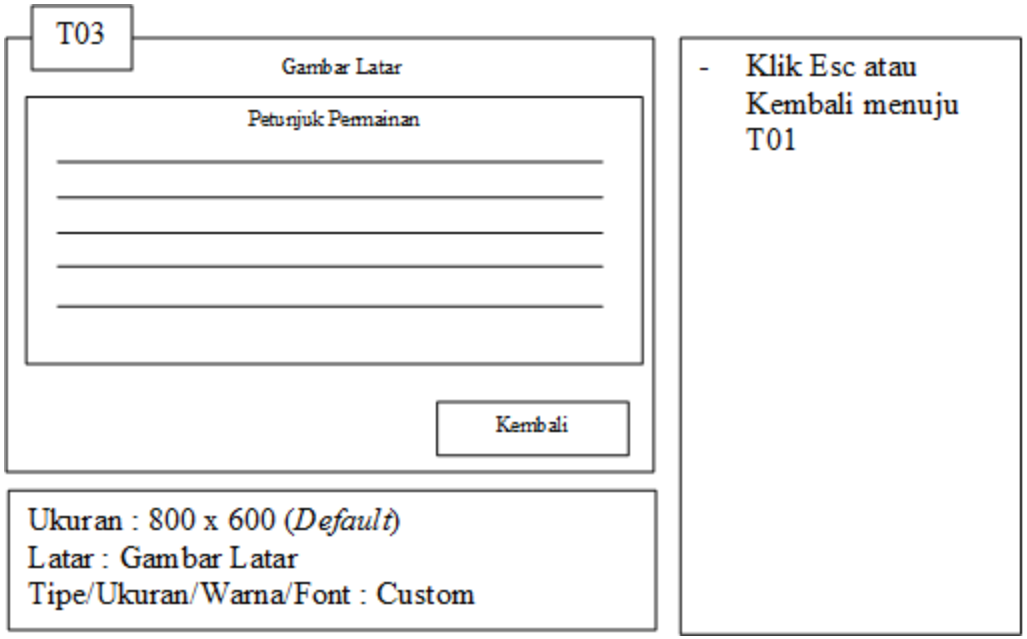
Menu Utama

Antarmuka



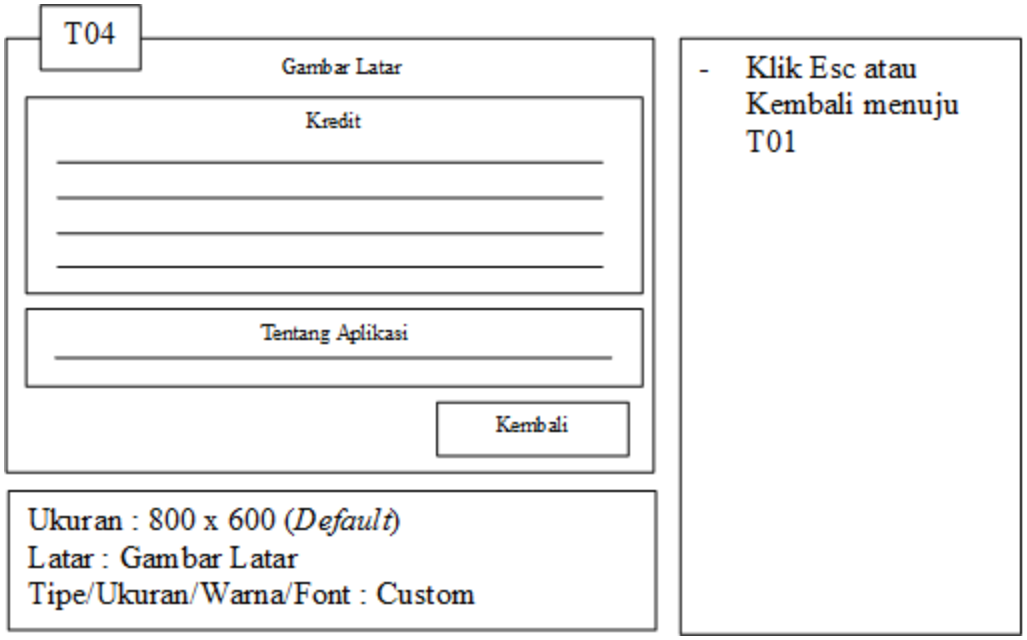
Mulai Permainan

Antarmuka



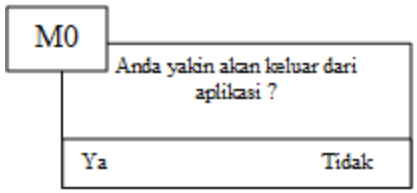
Lihat Petunjuk

Antarmuka



Lihat Petunjuk

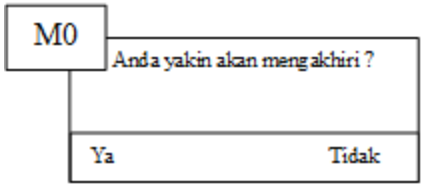
Pesan



- Klik Ya keluar dari aplikasi
- Klik Tidak menuju T01

Peringatan Keluar Aplikasi

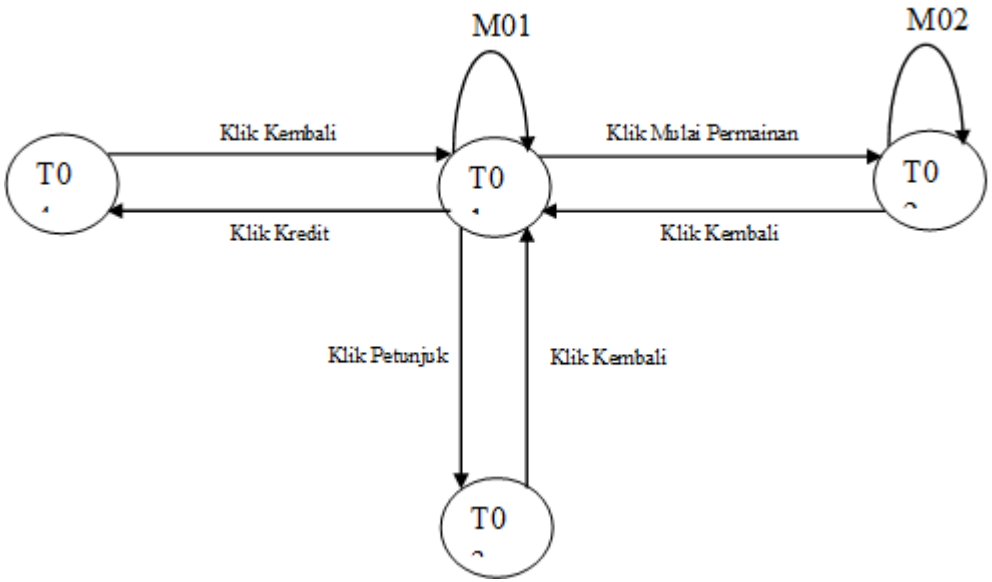
Pesan



- Klik Ya keluar dari aplikasi
- Klik Tidak menuju T02

Peringatan Keluar Permainan

Jaringan Semantik

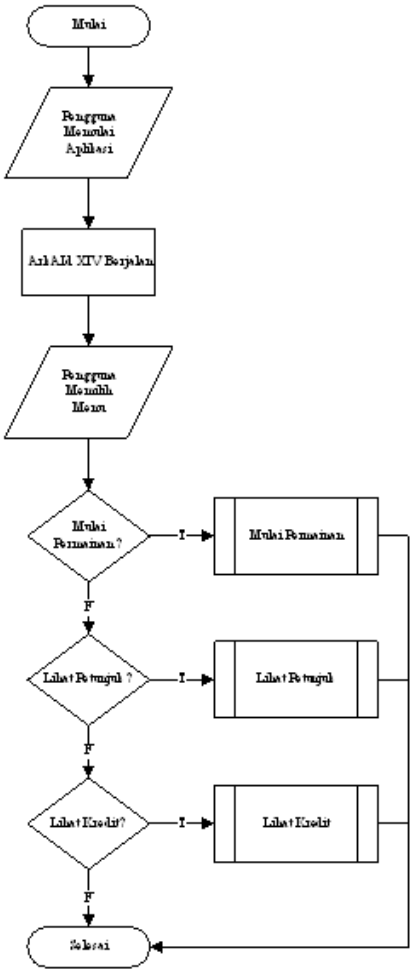


Jaringan Semantik

Implementasi dan Pengujian

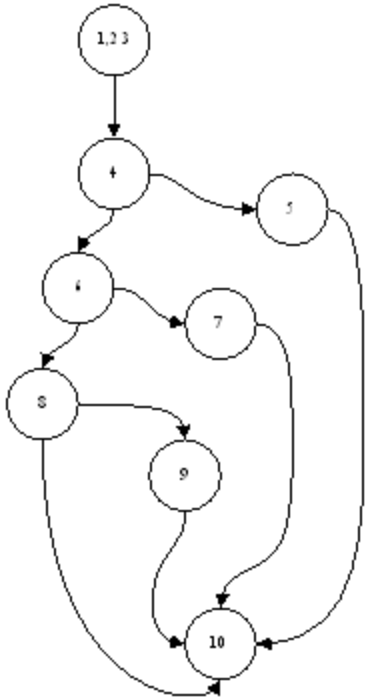
- Implementasi ArkAId XIV
- Pengujian : White Box

Flow Chart



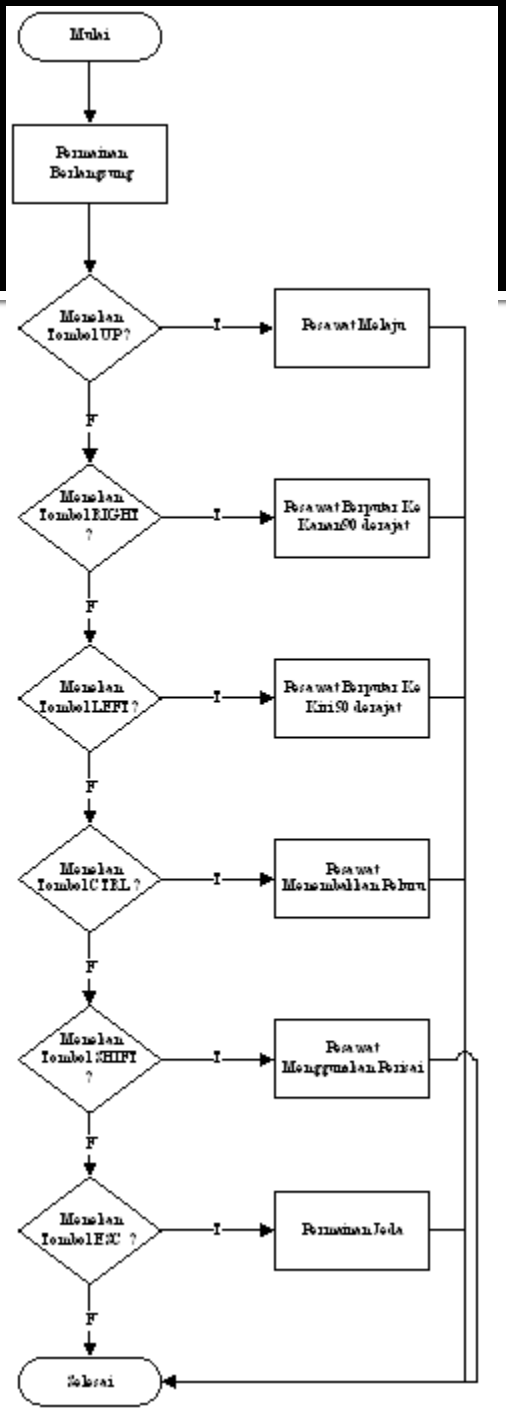
Menu Permainan

Flow Graph



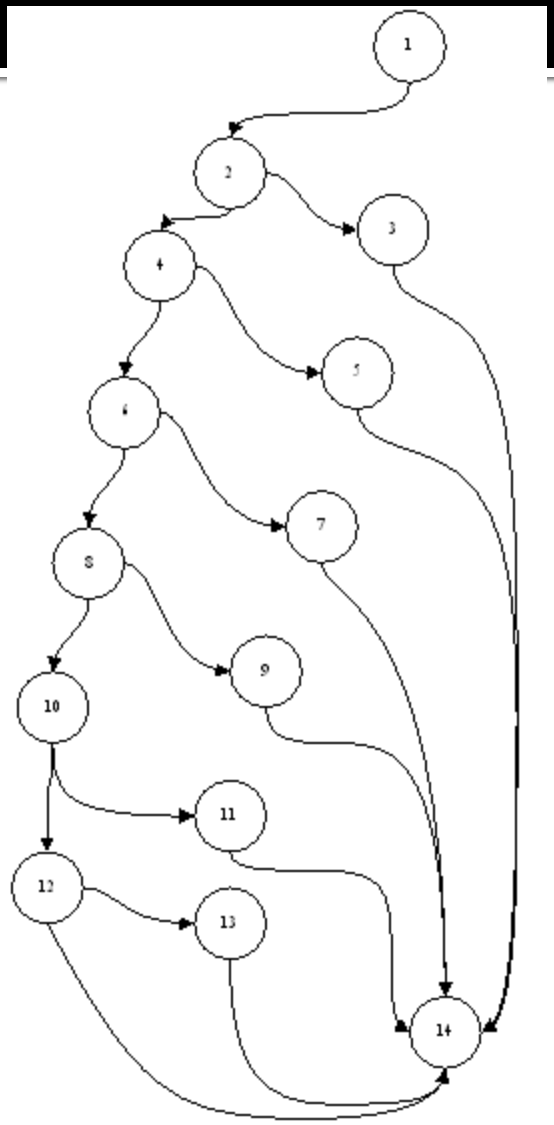
Menu Permainan

Flow Chart



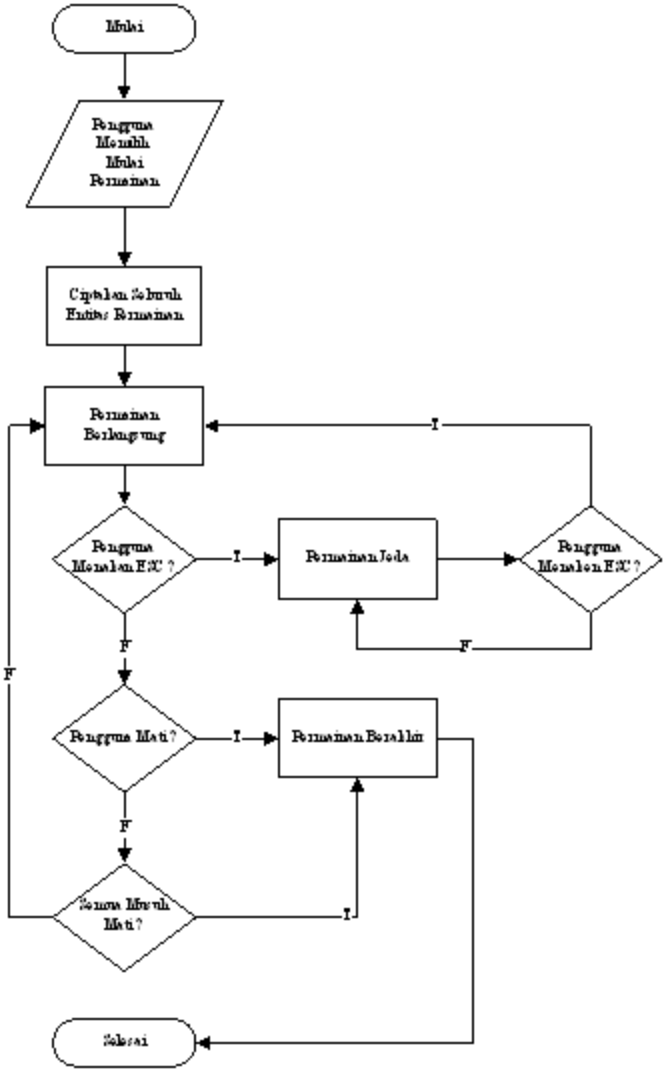
Interaksi Pengguna

Flow Graph



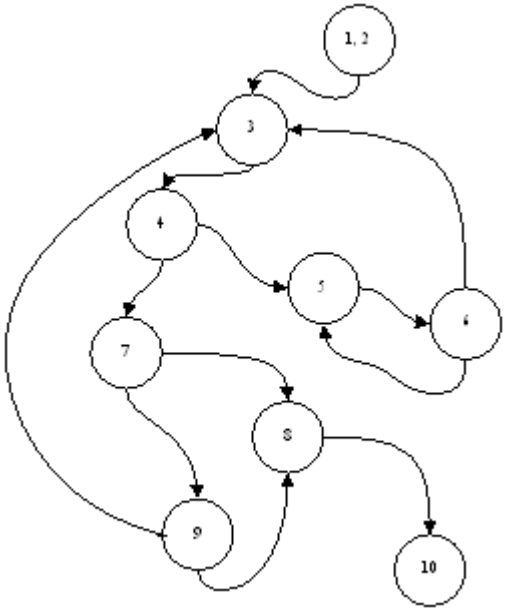
Interaksi Pengguna

Flow Chart



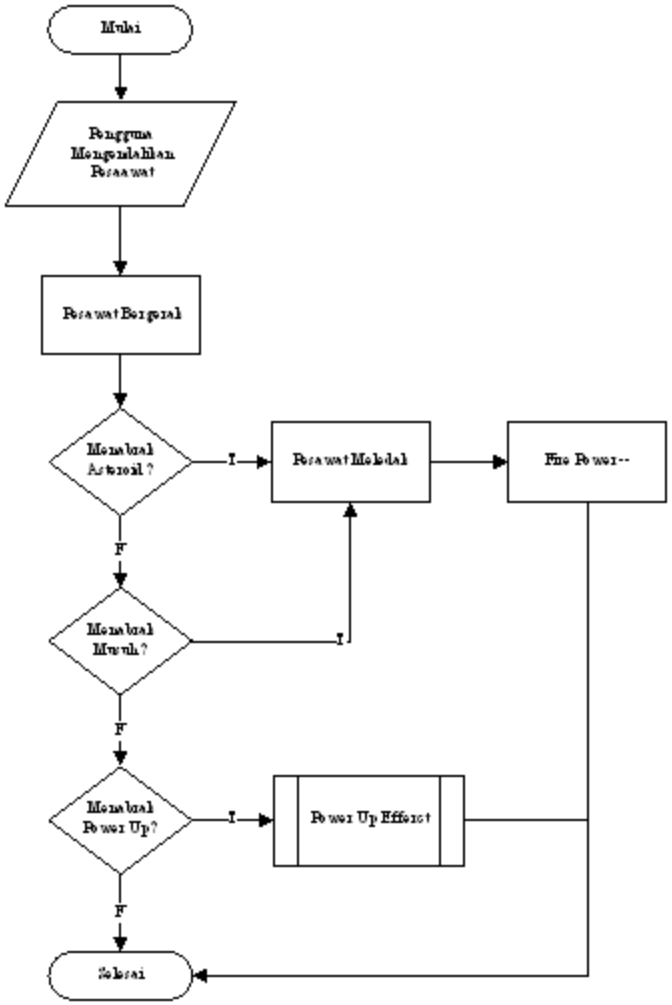
Alur Permainan

Flow Graph



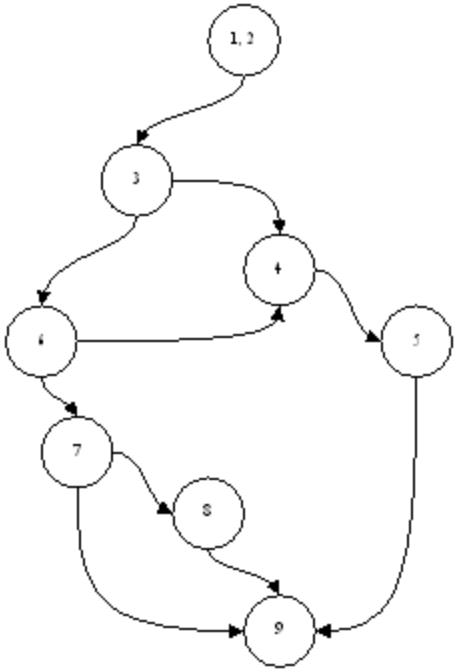
Alur Permainan

Flow Chart

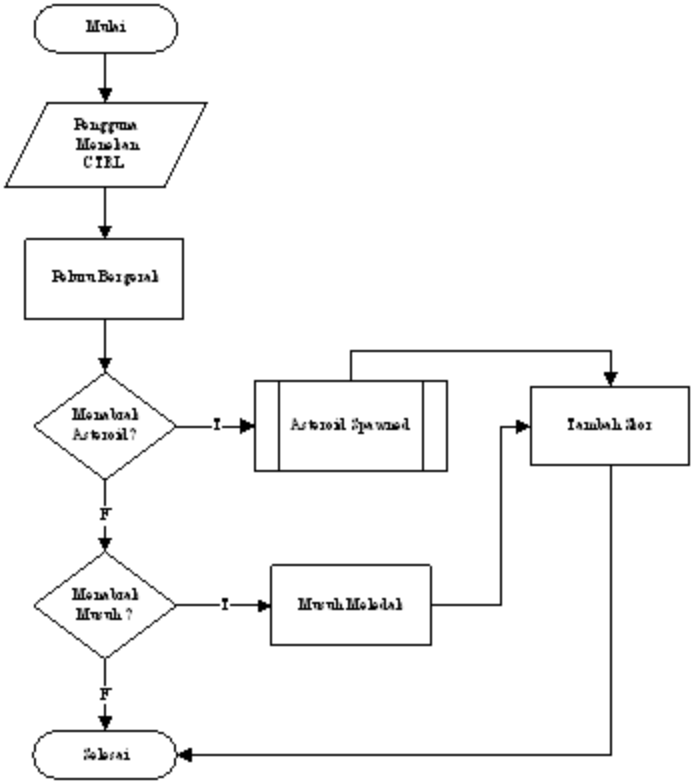


CD Pesawat

Flow Graph

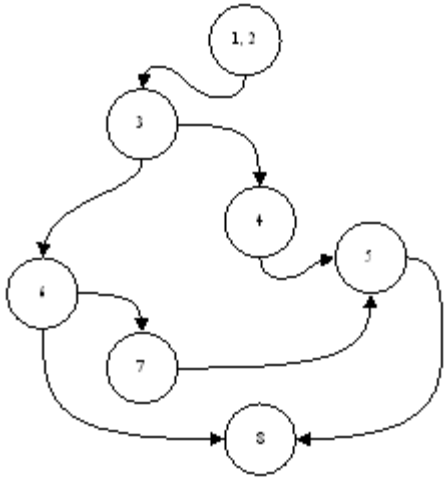


Flow Chart

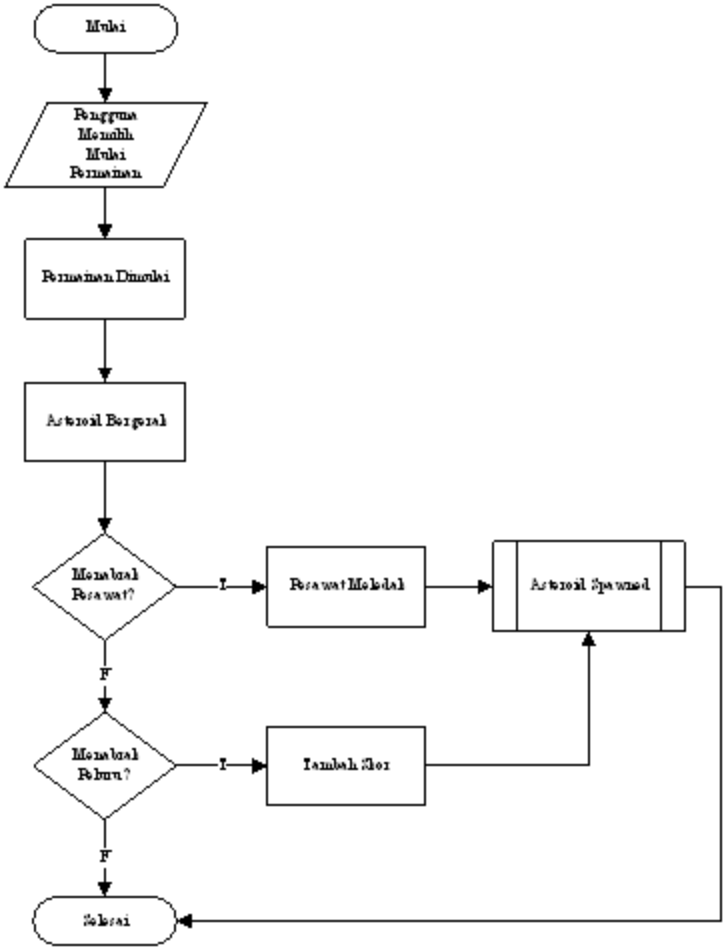


CD Peluru

Flow Graph

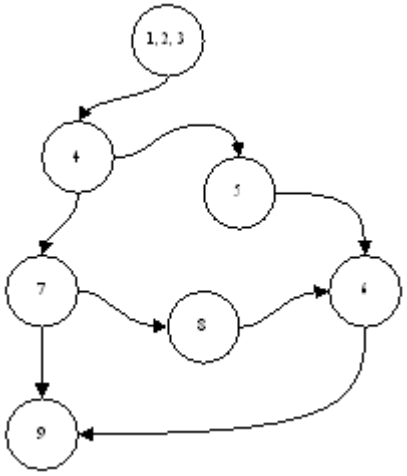


Flow Chart

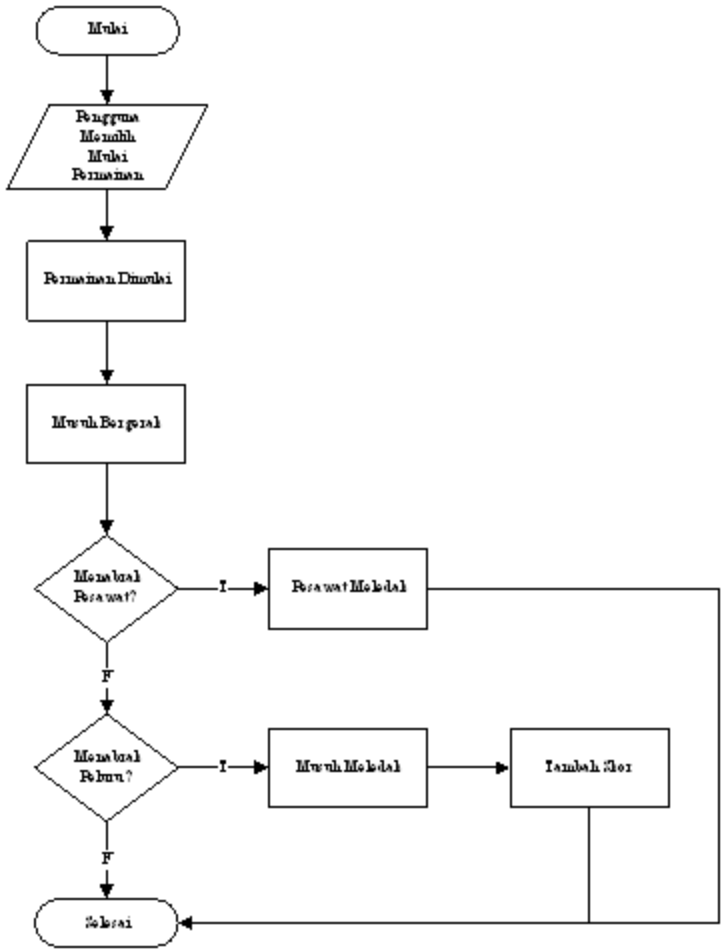


CD Asteroid

Flow Graph

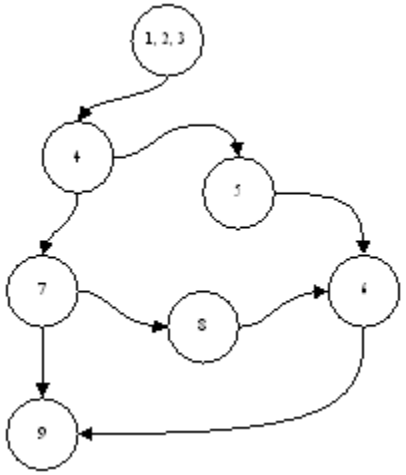


Flow Chart



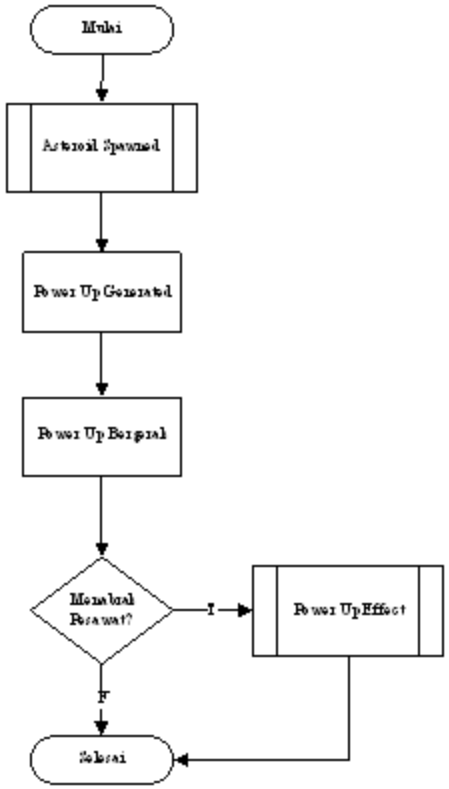
CD Musuh

Flow Graph



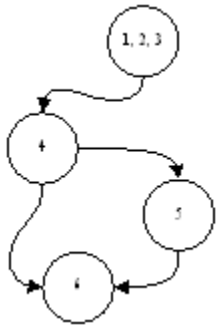
CD Musuh

Flow Chart

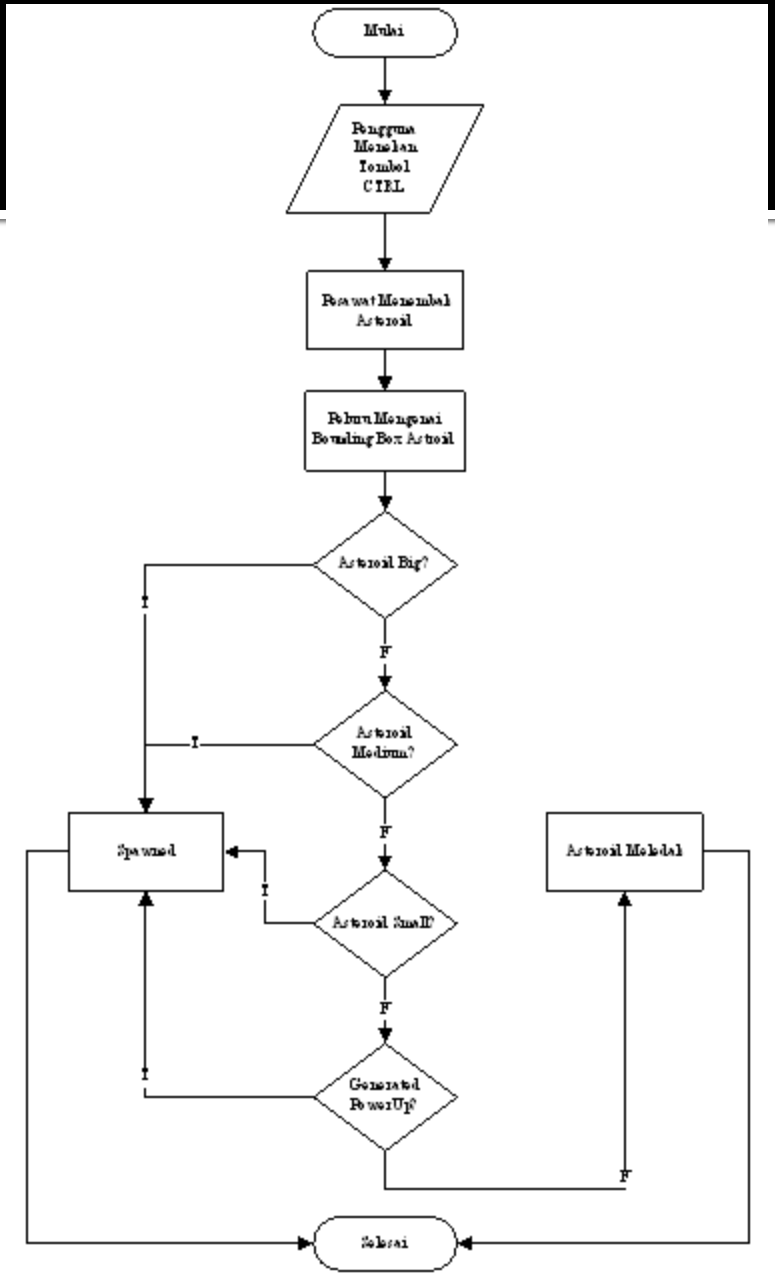


CD Power Up

Flow Graph

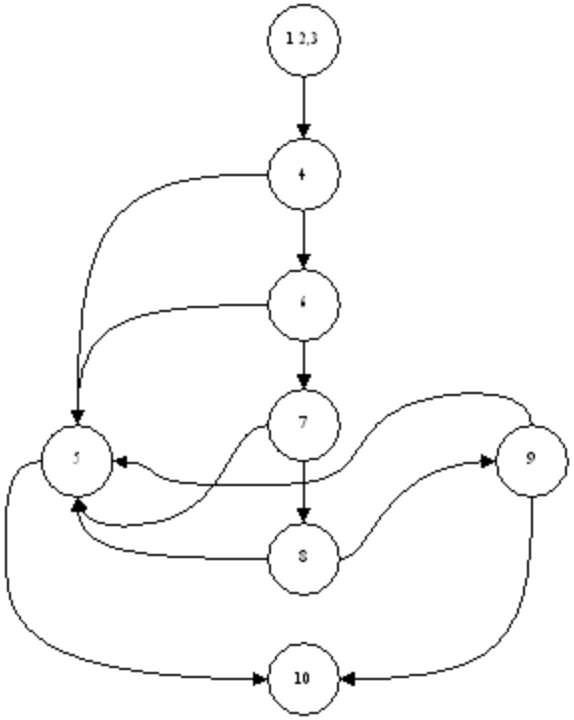


Flow Chart



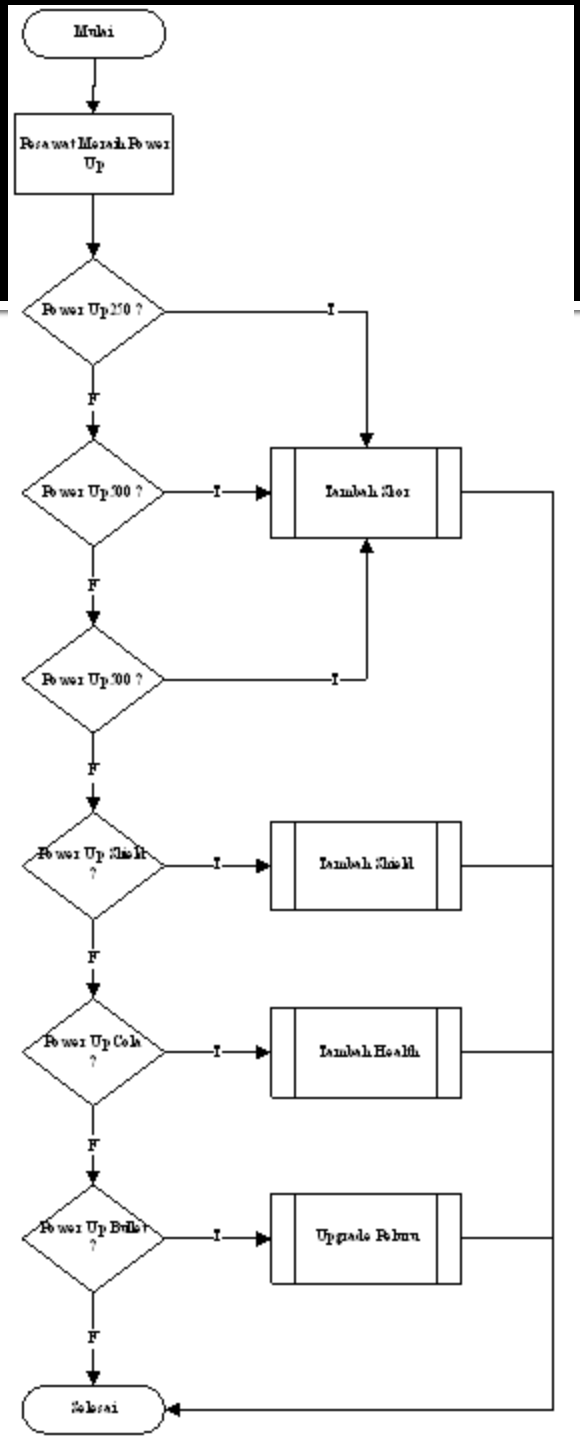
FSM Spawned Asteroid

Flow Graph



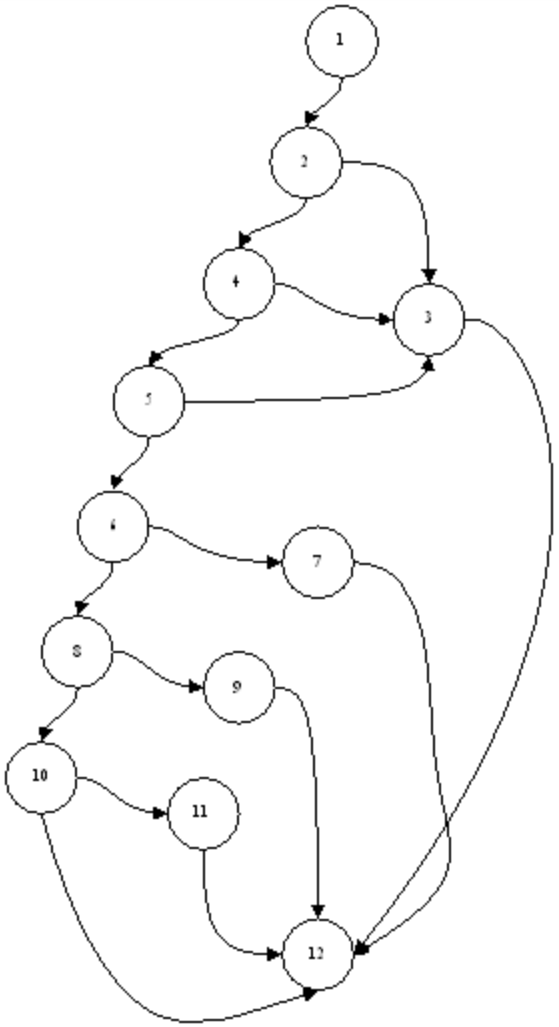
FSM Spawned Asteroid

Flow Chart



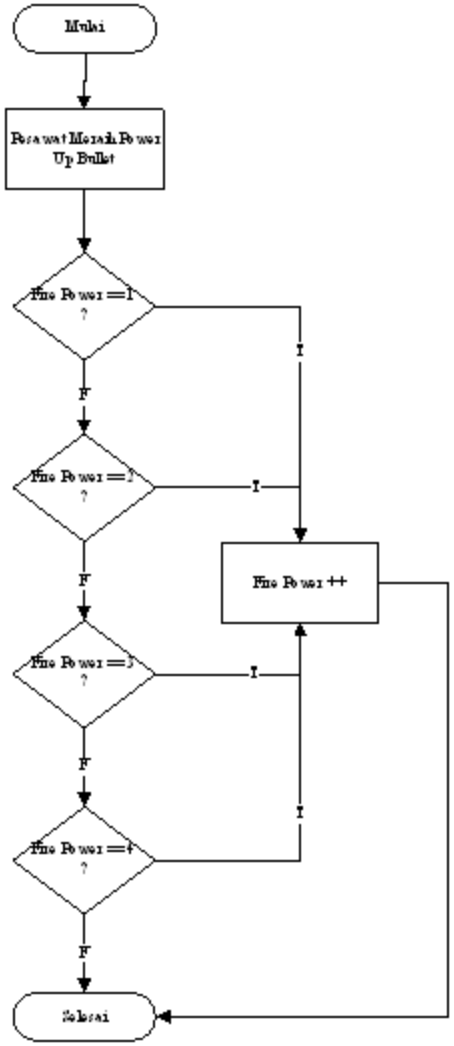
FSM Power Up Effect

Flow Graph



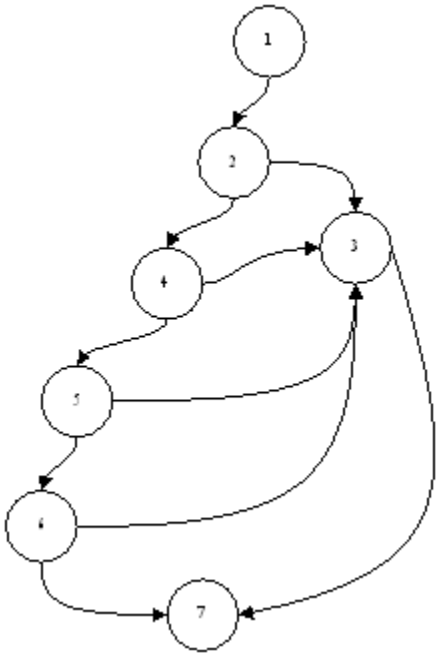
FSM Power Up
Effect

Flow Chart



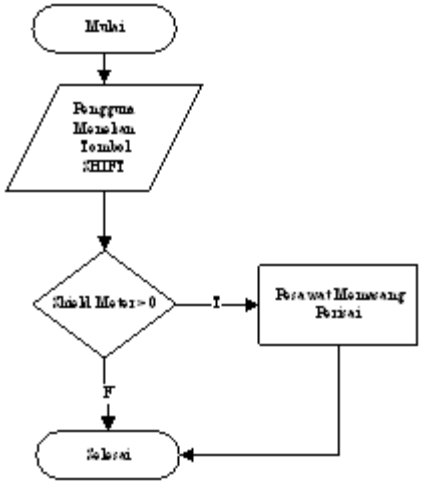
FSM Bullet Upgrade

Flow Graph



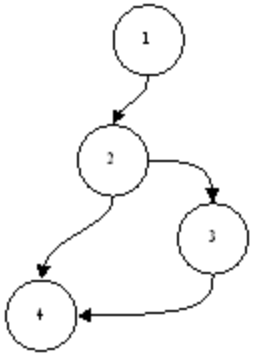
FSM Bullet Upgrade

Flow Chart



FSM Ship Shielded

Flow Graph



FSM Ship Shielded

Kesimpulan

- ArkAId XIV dapat menumbuhkan kembali dan meningkatkan tingkat ketertarikan pengguna aplikasi permainan terhadap permainan ber-*genre arcade-shooter.*

Saran

- Pengembangan aplikasi lebih lanjut dapat dilakukan dengan penggunaan *game* AI yang lebih kompleks, penambahan tingkat permainan, dan penambahan variasi musuh.

Demo Program