

ENTELECT
CHALLENGE
2018

TOWER DEFENCE

challenge.entelect.co.za

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What is the Entelect Challenge?

- The Biggest Coding Challenge in South Africa - 7th Year Running
- R 200 000 in cash prizes
- Based on retro and classic games
- Calling professionals, enthusiasts, and students
- Players build intelligent bots to play a game
 - Logic and problem solving
 - Development skills
 - Possibly Try Artificial Intelligence



HISTORY

- 2017 Battleships



- 2014 Pacman



- 2016 Bomberman



- 2013 Battle City



- 2015 Space Invaders



- 2012 Tron



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UNIVERSITY CHALLENGE

- One day hackathon - in July/August
- Takes place online and at each participating university
- Students want to compete in the challenge but have time constraints so we made something just for them
- Teams of three
- Winning team members win gaming laptops and cool tech for their university lab + tickets to join us at ComicCon

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★ UNIVERSITY ★ CUP

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THIS YEAR - TOWER DEFENCE

- THEMED ON COMMAND AND CONQUOR RED ALERT
- MECHANICS BASED ON PLANTS VS ZOMBIES
- DEFEND YOUR BASE AND ATTACK YOUR OPPONENT
- PLACE UNITS THAT HAVE DIFFERENT ABILITIES
 - ENERGY GENERATOR UNITS
 - ATTACK UNITS
 - DEFENCE UNITS
- ECONOMY MANAGEMENT & GAMEPLAY STRATEGY



TOURNAMENT FORMAT

- Codename Renegade - round robin
 - 11 June 2018
 - 1st place gets a golden ticket to the finals
 - 2nd place gets R2000
 - 3rd place gets R1000
- Operation Firestorm - round robin
 - 30 July 2018
 - 1st place gets a golden ticket to the finals
 - 2nd place gets R2000
 - 3rd place gets R1000
- Countdown to Zero Hour - Double Elimination
 - 9 September 2018
 - 1st - 6th place gets a golden ticket to the finals



TOURNAMENT FINALS

- Battle of the Sole Survivor - Double Elimination
 - 15 September 2018 @ 11:00, MAIN STAGE, COMIC CON AFRICA
 - 1st place gets R70 000
 - 2nd place gets R35 000
 - 3rd place gets R25 000
 - 4th place gets R25 000
 - 5th place gets R10 000
 - 6th place gets R10 000
 - 7th place gets R10 000
 - 8th place gets R10 000



TOWER DEFENCE - RULES SUMMARY

- EACH PLAYER STARTS WITH SOME ENERGY AND 100% HEALTH
- PLAYERS CAN PLACE UNITS THAT COST ENERGY
- UNITS HAVE ABILITIES SUCH AS ATTACK OR DEFENCE
- A PLAYER DOES ONE OF THE FOLLOWING EACH TURN:
 - NOTHING
 - PLACE ENERGY UNIT
 - PLACE ATTACK UNIT
 - PLACE DEFENCE UNIT
- MORE TO COME...

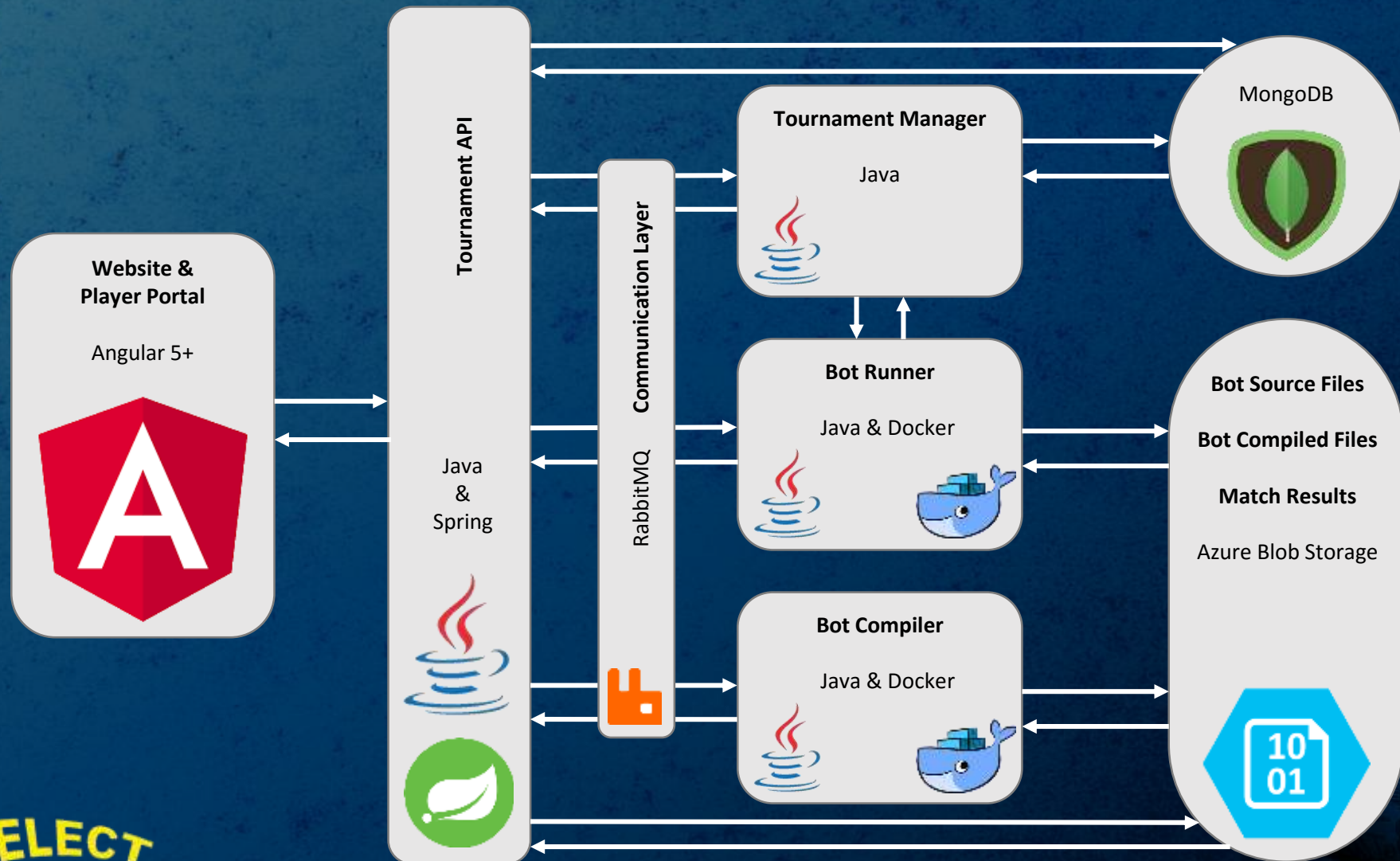


SUPPORTED LANGUAGES

- We support a variety of languages and the community has provided more starter bots
- Official
 - Java
 - C#
 - Python
 - JavaScript
- Community
 - C++
 - Rust
 - Kotlin
- We accept more contributions of starter bots on GitHub before 23:59 27 may



FOR THE GEEKS - ARCHITECTURE



JOIN TODAY

- WEBSITE CHALLENGE.ENTELECT.CO.ZA
- FORUM FORUM.ENTELECT.CO.ZA
- GITHUB GITHUB.COM/ENTELECTCHALLENGE
- EMAIL CHALLENGE@ENTELECT.CO.ZA



Questions?



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The Rules

<https://challenge.entellect.co.za/rules>

The Game

- Turn Based 1v1 Match
- Place Your buildings
- Defend your base
- Shoot missiles at the other player
- 0 Health = You Lose

The Map

- A grid of {x} by {y} cells
 - Top LEFT [0,0]
- A cell can contain 1 building
- You are always Player A
 - LEFT SIDE of the MAP
- Everything Visible to both players



Economy

- Buildings Cost Energy
- You start with {START_ENERGY} energy
- Every turn you get {Some} energy back
- Build energy generators to get MORE energy per turn

Commands

In Every Turn You can

- Build a building
 - "x,y,building_type"
 - Eg. **"0,0,1"**
- Do Nothing
 - Empty String
 - Any invalid Command
 - Timeout



Building Types

0 - Defense Building

- Cost: 30
- Health: 20
- Construction: 3 turns
- Symbol: D

1 - Attack Building

- Cost: 30
- Health: 5
- Firing Rate: Every 3 turns
- Damage: 5
- Construction: 1 turn
- Symbol: A

2 - Energy Building

- Cost: 20
- Health: 5
- Extra Energy: 3 per turn
- Construction: 1 turn
- Symbol: E

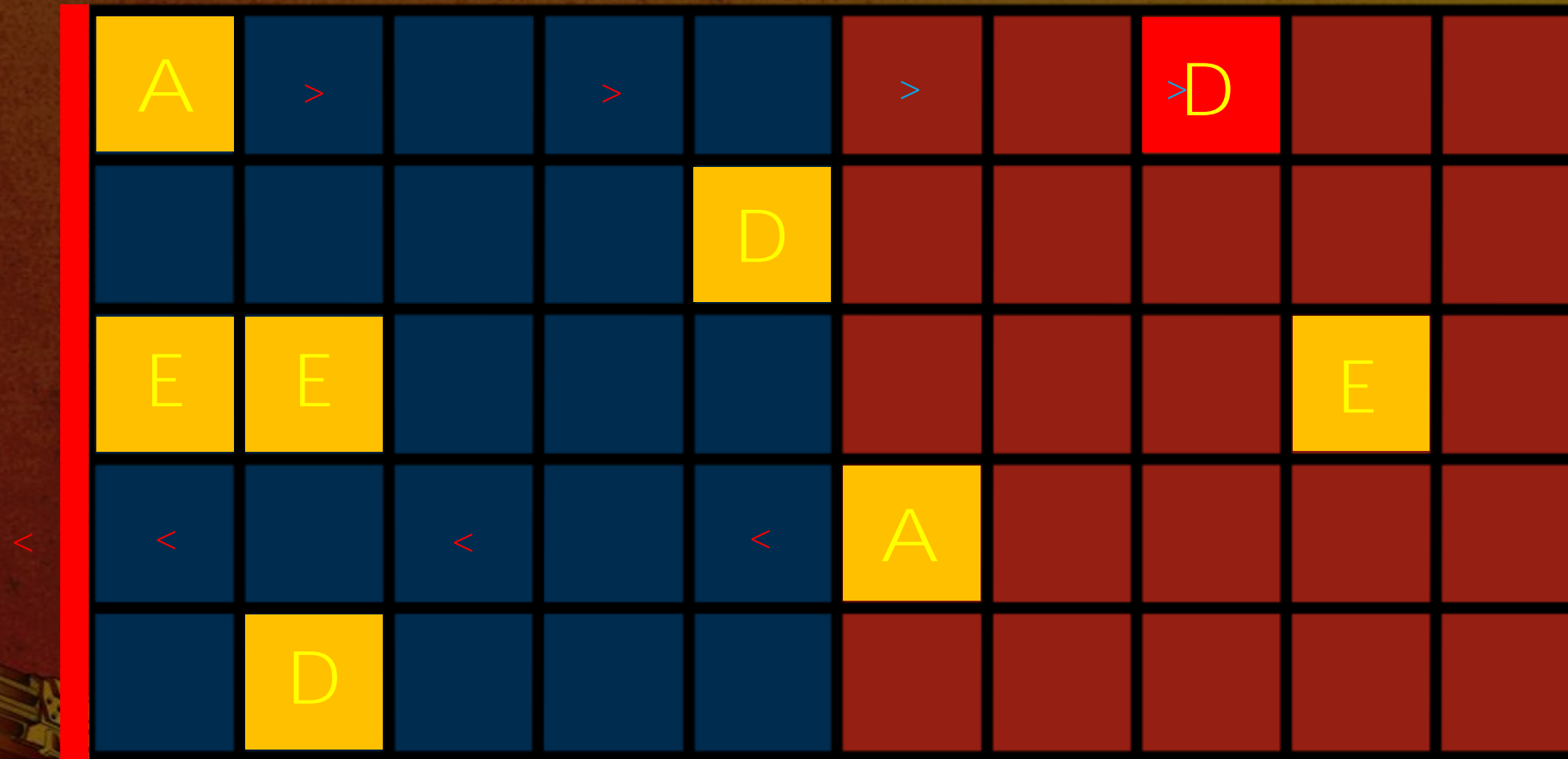


Missiles



- Attack buildings shoot missiles
- Movement
 - At least 1 cell on creation
 - At least 1 cell per turn
 - In a straight line towards opponent
 - Ignore your own buildings
 - Ignore buildings under construction
- Damage
 - Missiles ignore each other
 - Missiles will hit any opposing building
 - A missile can only hit a single **BUILDING OR THE OPPONENT'S BASE**
 - Damage make buildings/bases lose hitpoints

TOWER DEFENCE - RULES EXAMPLE



Player A places defence unit

Player B's missile unit takes a hit!

Rules Summary

- Map: {X} by {Y} grid
 - Top left: [0,0]
- Commands
 - "x,y,building_type"
 - Do nothing
- Building Types
 - 0 - Defense (D)
 - 1 - Attack (A)
 - 2 - energy (E)
- Energy
 - Buildings Cost Energy
 - You get some energy every turn
- Health
 - Buildings have health
 - Your base has health
 - Attacks make buildings/bases lose health

Defend your base!

