



EKSPERIMENTALNI RAD: DETEKCIJA SANTI LEDA POMOĆU CNN-A

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UVOD

Cilj: Razvoj sustava za raniju detekciju santi leda i upozorenje posade

Implementirane tri jednostavne CNN arhitekture

Fokus na evaluaciju i izbor najboljeg modela za prevenciju nesreća

ANALIZA PODATAKA

Skup podataka sadrži slike dimenzija: **75x75x3**

Klase:

- 0 – Brod
- 1 – Santa Leda

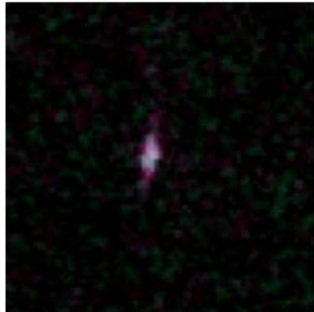
Trening podaci: 2001 brodova, 2112 santi leda.

- Split na: X_train, X_test, Y_train, Y_test -> 3113:1000

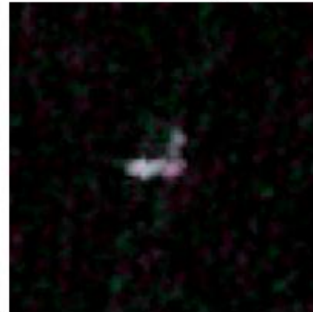
Validacijski podaci: 51 brod, 49 santi leda

ANALIZA PODATAKA

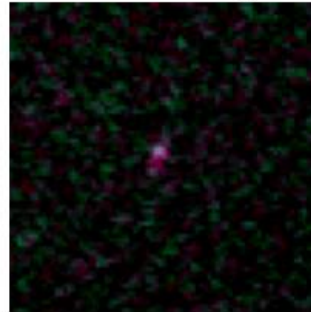
Label: Ship



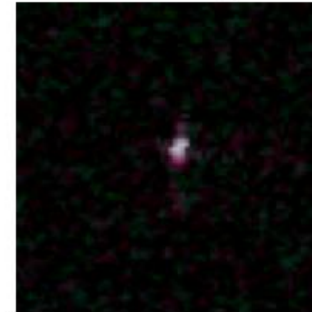
Label: Ship



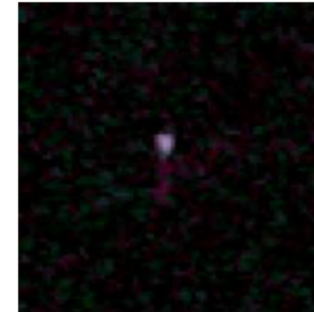
Label: Iceberg



Label: Ship



Label: Ship



IMPLEMENTACIJA CNN MODELA

SimpleCNN_v1

- Jedan konvolucijski sloj (8 filtera, kernel 3x3)

SimpleCNN_v2

- Dva konvolucijska sloja (32 i 64 filtera)

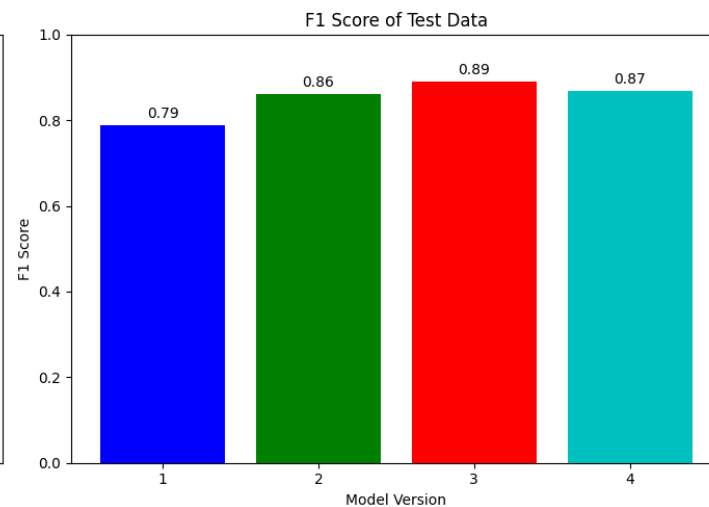
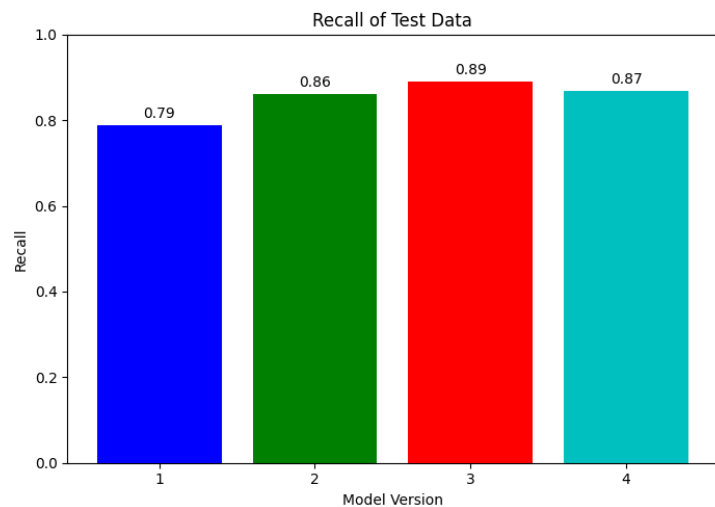
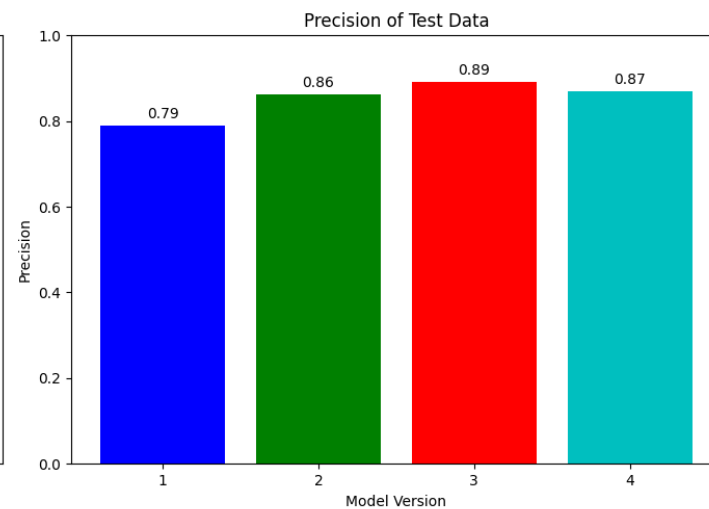
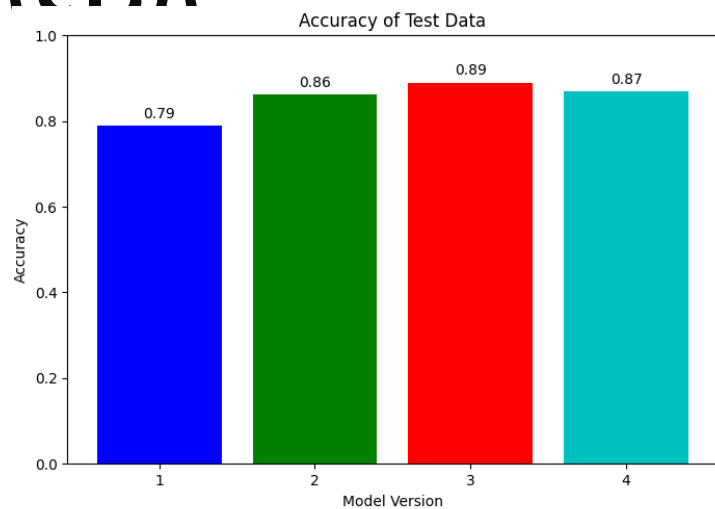
SimpleCNN_v3

- Tri konvolucijska sloja (32, 64 i 128 filtera)

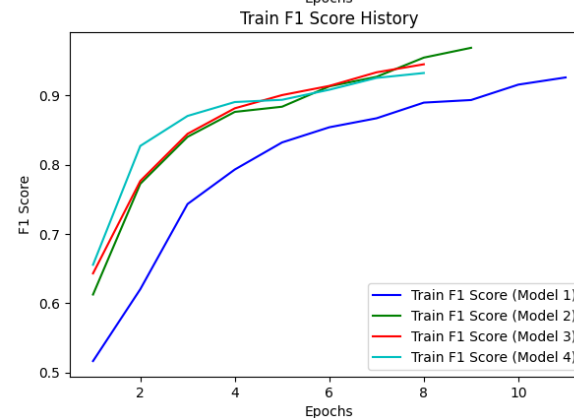
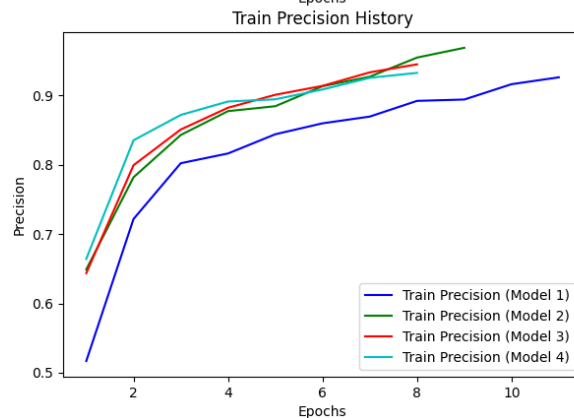
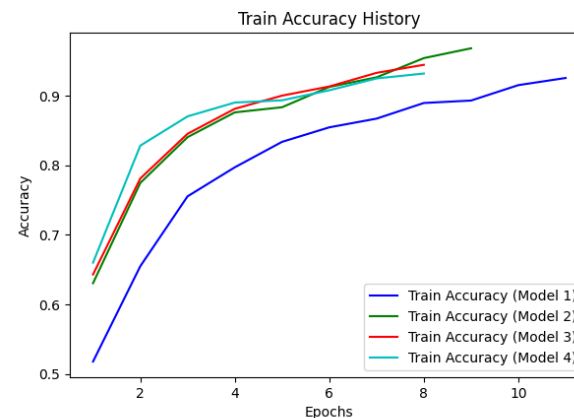
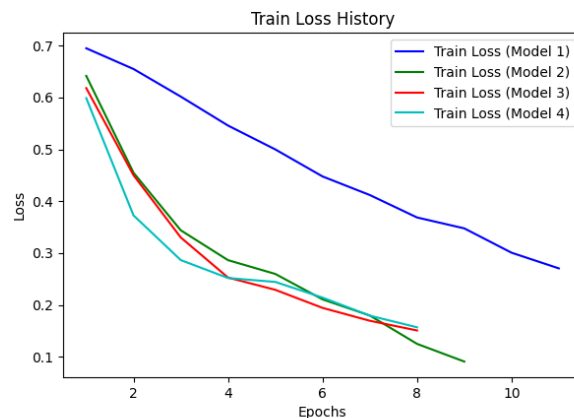
SimpleCNN_v4

- Tri konvolucijska sloja (32, 64 i 128 filtera)
- Dropout sloj -> 30%

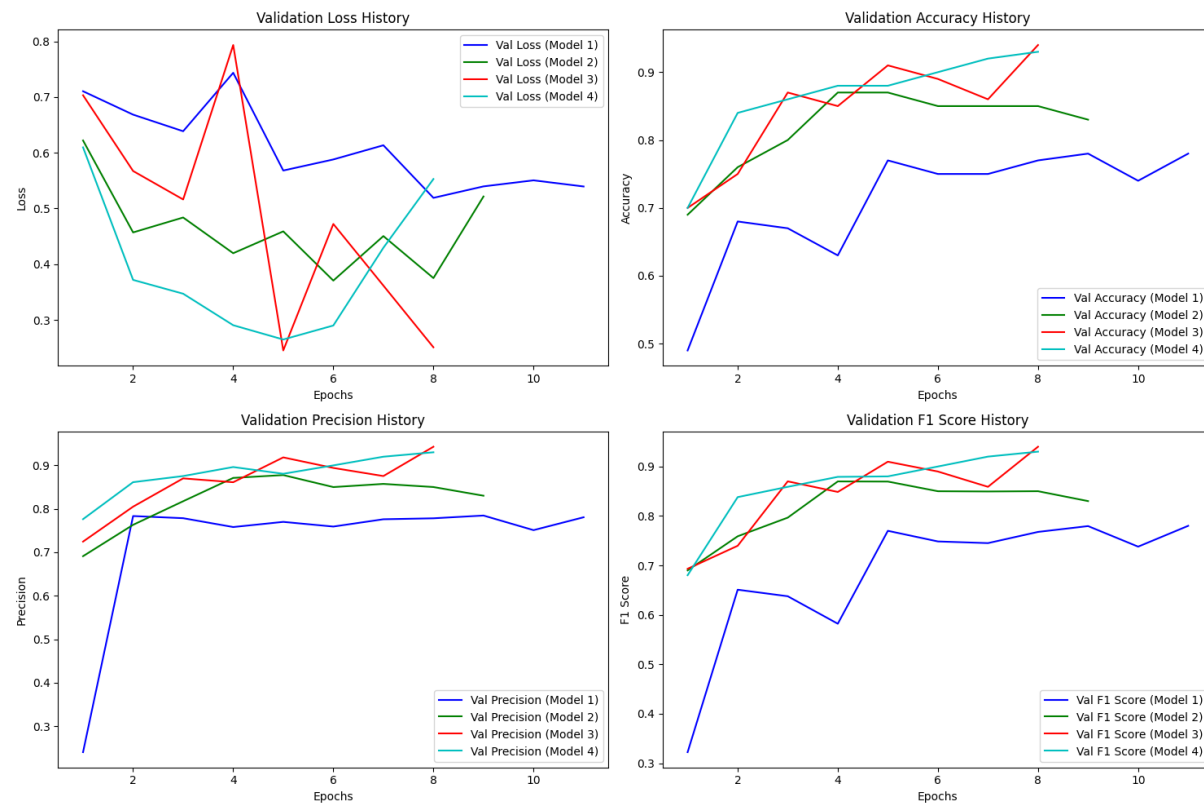
EVALUATION



EVALUACIJA



EVALUACIJA



REZULTATI

Model: 1
True: Iceberg
Pred: Iceberg

Model: 2
True: Iceberg
Pred: Iceberg

Model: 3
True: Iceberg
Pred: Iceberg

Model: 4
True: Iceberg
Pred: Iceberg

Model: 1
True: Ship
Pred: Ship

Model: 2
True: Ship
Pred: Ship

Model: 3
True: Ship
Pred: Iceberg

Model: 4
True: Ship
Pred: Ship

Model: 1
True: Iceberg
Pred: Ship

Model: 2
True: Iceberg
Pred: Ship

Model: 3
True: Iceberg
Pred: Iceberg

Model: 4
True: Iceberg
Pred: Ship

Model: 1
True: Ship
Pred: Ship

Model: 2
True: Ship
Pred: Iceberg

Model: 3
True: Ship
Pred: Ship

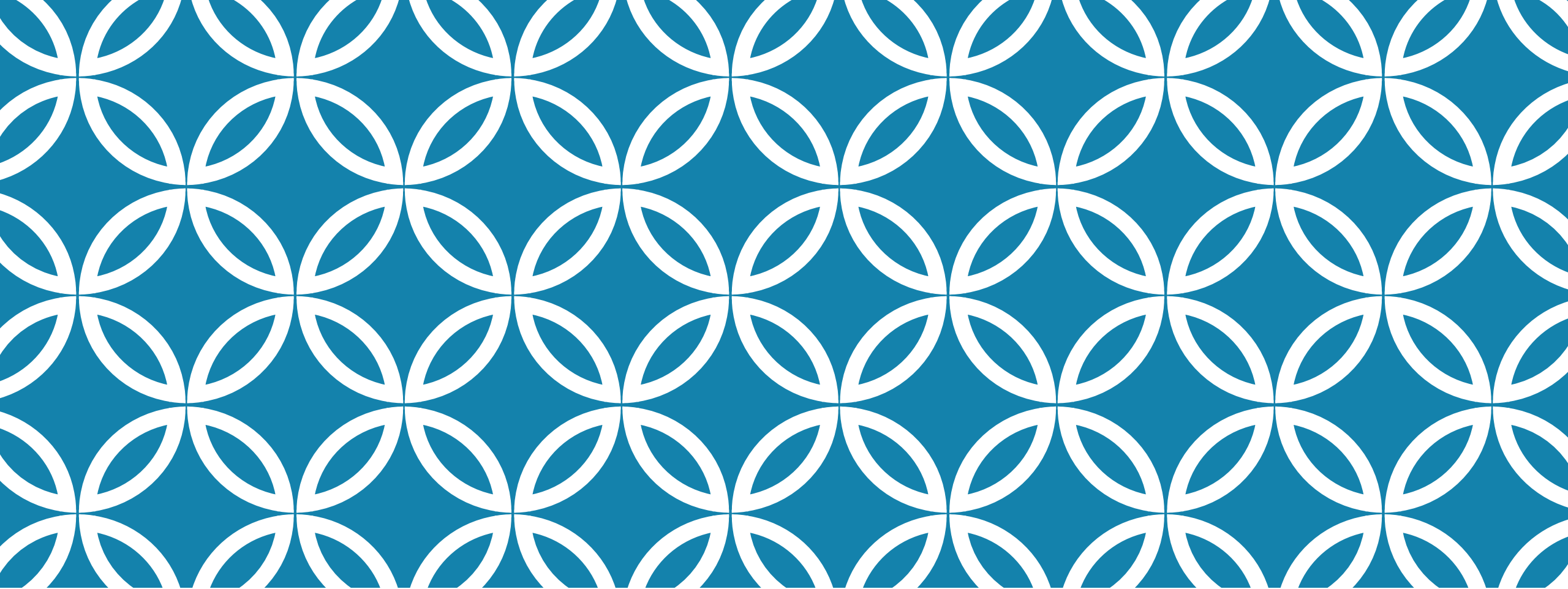
Model: 4
True: Ship
Pred: Ship

Model: 1
True: Iceberg
Pred: Iceberg

Model: 2
True: Iceberg
Pred: Iceberg

Model: 3
True: Iceberg
Pred: Iceberg

Model: 4
True: Iceberg
Pred: Ship



HVALA NA PAŽNJI