SISTEM PREPORUKE

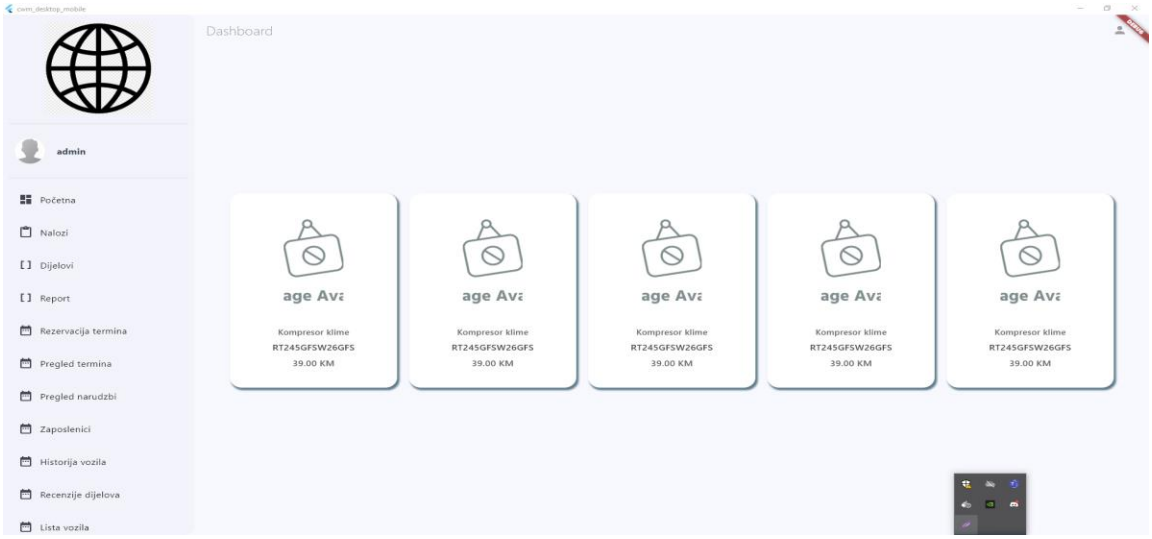
Funkcionalnost je dostupna korisnicima desktop i mobilne aplikacije, predstavlja implementaciju Content-Based filtering. ML algoritam radi na osnovu podataka prikupljenih od narudzbi klijenata, ocjene proizvoda i usluge ce biti pohranjene te na osnovu ocjene klijentu ce se preporuciti usluga ili proizvod slicni onima kojima je dao dobru ocjenu.

```
public void TrainModel(int id)
{
    lock (isLocked)
    {
        mlContext = new MLContext();

        var data = context.UserRatings.Include(x => x.Part).Where(x => x.UserId == id).OrderByDescending(y => y.ProductRating);

        var items = new List<Item>();

        foreach (var part in data)
        {
            items.Add(new Item()
            {
                Id = (int)part.PartId,
                Price = (float)part.Part.Price,
                Image = part.Part.Image,
                SerialNumber = part.Part.SerialNumber,
                Description = part.Part.Description,
                PartName = part.Part.PartName,
                Manufacturer = part.Part.Manufacturer,
            });
        }

        var itemData = mlContext.Data.LoadFromEnumerable(items);

        var textPipeline = mlContext.Transforms.Text.FeaturizeText("Features", nameof(Item.Description));

        transformedData = textPipeline.Fit(itemData).Transform(itemData);

        var preprocesedData = textPipeline.Fit(itemData);

        predictionEnigne = mlContext.Model.CreatePredictionEngine<Item, ItemVector>(preprocesedData);
    }
}

1 reference
public float ComputeSimilarity(float[] userVector, float[] exerciseVector)
{
    if (userVector.Length != exerciseVector.Length || userVector.Length == 0)
        return 0;

    float dotProduct = 0;
    for (int i = 0; i < userVector.Length; i++)
    {
        dotProduct += userVector[i] * exerciseVector[i];
    }

    float userMagnitude = (float)Math.Sqrt(userVector.Sum(x => x * x));
    float exerciseMagnitude = (float)Math.Sqrt(exerciseVector.Sum(x => x * x));

    if (userMagnitude == 0 || exerciseMagnitude == 0)
        return 0;

    return dotProduct / (userMagnitude * exerciseMagnitude);
}
```

RecommendParts/{id}

```
2 references
public List<Core.Models.Part> RecommendProizvodi(int id)
{
    var result = new List<Core.Models.Part>();
    var isNull = false;

    var user = context.UserRatings.Where(x => x.UserId == id);
    foreach (var item in user) { isNull = true; }
    if (isNull)
    {
        TrainModel(id);

        var items = new List<Item>();

        var parts = new List<Core.Models.Part>();

        var userRatings = context.Parts.ToList();

        foreach (var userRating in userRatings)
        {
            items.Add(new Item()
            {
                Id = userRating.Id,
                Price = (float)userRating.Price,
                Image = userRating.Image,
                SerialNumber = userRating.SerialNumber,
                Description = userRating.Description,
                PartName = userRating.PartName,
                Manufacturer = userRating.Manufacturer,
            });
        }

        var itemVector = transformedData.GetColumn<float[]>("Features").ToArray()[0];

        var recommendations = items
        .Select(i => new
        {
            Item = i,
            Similarity = ComputeSimilarity(itemVector, predictionEnigne.Predict(i).Features)
        })
        .OrderByDescending(x => x.Similarity)
        .Take(5);

        foreach (var userRating in recommendations)
        {
            parts.Add(new Core.Models.Part()
            {
                Id = userRating.Item.Id,
                Price = (decimal)userRating.Item.Price,
                SerialNumber = userRating.Item.SerialNumber,
                Description = userRating.Item.Description,
                PartName = userRating.Item.PartName,
                Manufacturer = userRating.Item.Manufacturer,
            });
        }
        result = mapper.Map<List<Core.Models.Part>>(parts);
        return result;
    }
    else return result;
}
```

Home screen


Dashboard
admin
Početna
Nalozi
Dijelovi
Report
Rezervacija termina
Pregled termina
Pregled narudzbi
Zaposlenici
Historija vozila
Recenzije dijelova
Lista vozila
age Ava
Kompresor klime
RT245GFSW26GFS
39.00 KM