package com.twitter.home\_mixer.product.scored\_tweets.scoring\_pipeline

import com.twitter.home\_mixer.functional\_component.feature\_hydrator.\_

import com.twitter.home\_mixer.model.HomeFeatures.EarlybirdScoreFeature

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.CachedScoredTweetsCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsBackfillCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsFrsCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsInNetworkCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsListsCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsPopularVideosCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsTweetMixerCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.candidate\_pipeline.ScoredTweetsUtegCandidatePipelineConfig

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.AncestorFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.AuthorFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.AuthorIsCreatorFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.EarlybirdFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.GizmoduckAuthorFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.GraphTwoHopFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.MetricCenterUserCountingFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.RealGraphViewerAuthorFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.RealGraphViewerRelatedUsersFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.RealTimeInteractionGraphEdgeFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.SimClustersEngagementSimilarityFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.SimClustersUserTweetScoresHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.TSPInferredTopicFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.TweetMetaDataFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.TweetTimeFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.TweetypieContentFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.TwhinAuthorFollowFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.UtegFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.offline\_aggregates.Phase1EdgeAggregateFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.offline\_aggregates.Phase2EdgeAggregateFeatureHydrator

import com.twitter.home\_mixer.product.scored\_tweets.feature\_hydrator.real\_time\_aggregates.\_

import com.twitter.home\_mixer.product.scored\_tweets.model.ScoredTweetsQuery

import com.twitter.home\_mixer.product.scored\_tweets.param.ScoredTweetsParam.QualityFactor

import com.twitter.home\_mixer.product.scored\_tweets.scorer.NaviModelScorer

import com.twitter.home\_mixer.util.CandidatesUtil

import com.twitter.product\_mixer.component\_library.gate.NonEmptyCandidatesGate

import com.twitter.product\_mixer.component\_library.model.candidate.TweetCandidate

import com.twitter.product\_mixer.component\_library.selector.DropMaxCandidates

import com.twitter.product\_mixer.component\_library.selector.InsertAppendResults

import com.twitter.product\_mixer.component\_library.selector.UpdateSortCandidates

import com.twitter.product\_mixer.core.functional\_component.common.AllExceptPipelines

import com.twitter.product\_mixer.core.functional\_component.common.SpecificPipeline

import com.twitter.product\_mixer.core.functional\_component.common.SpecificPipelines

import com.twitter.product\_mixer.core.functional\_component.feature\_hydrator.BaseCandidateFeatureHydrator

import com.twitter.product\_mixer.core.functional\_component.gate.BaseGate

import com.twitter.product\_mixer.core.functional\_component.scorer.Scorer

import com.twitter.product\_mixer.core.functional\_component.selector.Selector

import com.twitter.product\_mixer.core.model.common.identifier.CandidatePipelineIdentifier

import com.twitter.product\_mixer.core.model.common.identifier.ScoringPipelineIdentifier

import com.twitter.product\_mixer.core.model.common.presentation.CandidateWithDetails

import com.twitter.product\_mixer.core.model.common.presentation.ItemCandidateWithDetails

import com.twitter.product\_mixer.core.pipeline.pipeline\_failure.PipelineFailure

import com.twitter.product\_mixer.core.pipeline.pipeline\_failure.UnexpectedCandidateResult

import com.twitter.product\_mixer.core.pipeline.scoring.ScoringPipelineConfig

import com.twitter.timelines.configapi.Param

import javax.inject.Inject

import javax.inject.Singleton

@Singleton

class ScoredTweetsModelScoringPipelineConfig @Inject() (

// candidate sources

scoredTweetsInNetworkCandidatePipelineConfig: ScoredTweetsInNetworkCandidatePipelineConfig,

scoredTweetsUtegCandidatePipelineConfig: ScoredTweetsUtegCandidatePipelineConfig,

scoredTweetsTweetMixerCandidatePipelineConfig: ScoredTweetsTweetMixerCandidatePipelineConfig,

scoredTweetsFrsCandidatePipelineConfig: ScoredTweetsFrsCandidatePipelineConfig,

scoredTweetsListsCandidatePipelineConfig: ScoredTweetsListsCandidatePipelineConfig,

scoredTweetsPopularVideosCandidatePipelineConfig: ScoredTweetsPopularVideosCandidatePipelineConfig,

scoredTweetsBackfillCandidatePipelineConfig: ScoredTweetsBackfillCandidatePipelineConfig,

// feature hydrators

ancestorFeatureHydrator: AncestorFeatureHydrator,

authorFeatureHydrator: AuthorFeatureHydrator,

authorIsCreatorFeatureHydrator: AuthorIsCreatorFeatureHydrator,

earlybirdFeatureHydrator: EarlybirdFeatureHydrator,

gizmoduckAuthorSafetyFeatureHydrator: GizmoduckAuthorFeatureHydrator,

graphTwoHopFeatureHydrator: GraphTwoHopFeatureHydrator,

metricCenterUserCountingFeatureHydrator: MetricCenterUserCountingFeatureHydrator,

perspectiveFilteredSocialContextFeatureHydrator: PerspectiveFilteredSocialContextFeatureHydrator,

realGraphViewerAuthorFeatureHydrator: RealGraphViewerAuthorFeatureHydrator,

realGraphViewerRelatedUsersFeatureHydrator: RealGraphViewerRelatedUsersFeatureHydrator,

realTimeInteractionGraphEdgeFeatureHydrator: RealTimeInteractionGraphEdgeFeatureHydrator,

sgsValidSocialContextFeatureHydrator: SGSValidSocialContextFeatureHydrator,

simClustersEngagementSimilarityFeatureHydrator: SimClustersEngagementSimilarityFeatureHydrator,

simClustersUserTweetScoresHydrator: SimClustersUserTweetScoresHydrator,

tspInferredTopicFeatureHydrator: TSPInferredTopicFeatureHydrator,

tweetypieContentFeatureHydrator: TweetypieContentFeatureHydrator,

twhinAuthorFollowFeatureHydrator: TwhinAuthorFollowFeatureHydrator,

utegFeatureHydrator: UtegFeatureHydrator,

// real time aggregate feature hydrators

engagementsReceivedByAuthorRealTimeAggregateFeatureHydrator: EngagementsReceivedByAuthorRealTimeAggregateFeatureHydrator,

topicCountryEngagementRealTimeAggregateFeatureHydrator: TopicCountryEngagementRealTimeAggregateFeatureHydrator,

topicEngagementRealTimeAggregateFeatureHydrator: TopicEngagementRealTimeAggregateFeatureHydrator,

tweetCountryEngagementRealTimeAggregateFeatureHydrator: TweetCountryEngagementRealTimeAggregateFeatureHydrator,

tweetEngagementRealTimeAggregateFeatureHydrator: TweetEngagementRealTimeAggregateFeatureHydrator,

twitterListEngagementRealTimeAggregateFeatureHydrator: TwitterListEngagementRealTimeAggregateFeatureHydrator,

userAuthorEngagementRealTimeAggregateFeatureHydrator: UserAuthorEngagementRealTimeAggregateFeatureHydrator,

// offline aggregate feature hydrators

phase1EdgeAggregateFeatureHydrator: Phase1EdgeAggregateFeatureHydrator,

phase2EdgeAggregateFeatureHydrator: Phase2EdgeAggregateFeatureHydrator,

// model

naviModelScorer: NaviModelScorer)

extends ScoringPipelineConfig[ScoredTweetsQuery, TweetCandidate] {

override val identifier: ScoringPipelineIdentifier =

ScoringPipelineIdentifier("ScoredTweetsModel")

private val nonCachedScoringPipelineScope = AllExceptPipelines(

pipelinesToExclude = Set(CachedScoredTweetsCandidatePipelineConfig.Identifier)

)

override val gates: Seq[BaseGate[ScoredTweetsQuery]] = Seq(

NonEmptyCandidatesGate(nonCachedScoringPipelineScope)

)

private val earlybirdScorePipelineScope = Set(

scoredTweetsInNetworkCandidatePipelineConfig.identifier,

scoredTweetsUtegCandidatePipelineConfig.identifier,

scoredTweetsFrsCandidatePipelineConfig.identifier

)

private val earlybirdScoreOrdering: Ordering[CandidateWithDetails] =

Ordering.by[CandidateWithDetails, Double] {

case ItemCandidateWithDetails(\_, \_, features) =>

-features.getOrElse(EarlybirdScoreFeature, None).getOrElse(0.0)

case \_ => throw PipelineFailure(UnexpectedCandidateResult, "Invalid candidate type")

}

private def qualityFactorDropMaxCandidates(

pipelineIdentifier: CandidatePipelineIdentifier,

qualityFactorParam: Param[Int]

): DropMaxCandidates[ScoredTweetsQuery] = {

new DropMaxCandidates(

pipelineScope = SpecificPipelines(pipelineIdentifier),

maxSelector = (query, \_, \_) =>

(query.getQualityFactorCurrentValue(identifier) \*

query.params(qualityFactorParam)).toInt

)

}

override val selectors: Seq[Selector[ScoredTweetsQuery]] = Seq(

UpdateSortCandidates(SpecificPipelines(earlybirdScorePipelineScope), earlybirdScoreOrdering),

UpdateSortCandidates(

SpecificPipeline(scoredTweetsBackfillCandidatePipelineConfig.identifier),

CandidatesUtil.reverseChronTweetsOrdering

),

qualityFactorDropMaxCandidates(

scoredTweetsInNetworkCandidatePipelineConfig.identifier,

QualityFactor.InNetworkMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsUtegCandidatePipelineConfig.identifier,

QualityFactor.UtegMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsFrsCandidatePipelineConfig.identifier,

QualityFactor.FrsMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsTweetMixerCandidatePipelineConfig.identifier,

QualityFactor.TweetMixerMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsListsCandidatePipelineConfig.identifier,

QualityFactor.ListsMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsPopularVideosCandidatePipelineConfig.identifier,

QualityFactor.PopularVideosMaxTweetsToScoreParam

),

qualityFactorDropMaxCandidates(

scoredTweetsBackfillCandidatePipelineConfig.identifier,

QualityFactor.BackfillMaxTweetsToScoreParam

),

// Select candidates for Heavy Ranker Feature Hydration and Scoring

InsertAppendResults(nonCachedScoringPipelineScope)

)

override val preScoringFeatureHydrationPhase1: Seq[

BaseCandidateFeatureHydrator[ScoredTweetsQuery, TweetCandidate, \_]

] = Seq(

TweetMetaDataFeatureHydrator,

ancestorFeatureHydrator,

authorFeatureHydrator,

authorIsCreatorFeatureHydrator,

earlybirdFeatureHydrator,

gizmoduckAuthorSafetyFeatureHydrator,

graphTwoHopFeatureHydrator,

metricCenterUserCountingFeatureHydrator,

realTimeInteractionGraphEdgeFeatureHydrator,

realGraphViewerAuthorFeatureHydrator,

simClustersEngagementSimilarityFeatureHydrator,

simClustersUserTweetScoresHydrator,

InNetworkFeatureHydrator,

tspInferredTopicFeatureHydrator,

tweetypieContentFeatureHydrator,

twhinAuthorFollowFeatureHydrator,

utegFeatureHydrator,

// real time aggregates

engagementsReceivedByAuthorRealTimeAggregateFeatureHydrator,

tweetCountryEngagementRealTimeAggregateFeatureHydrator,

tweetEngagementRealTimeAggregateFeatureHydrator,

twitterListEngagementRealTimeAggregateFeatureHydrator,

userAuthorEngagementRealTimeAggregateFeatureHydrator,

// offline aggregates

phase1EdgeAggregateFeatureHydrator

)

override val preScoringFeatureHydrationPhase2: Seq[

BaseCandidateFeatureHydrator[ScoredTweetsQuery, TweetCandidate, \_]

] = Seq(

perspectiveFilteredSocialContextFeatureHydrator,

phase2EdgeAggregateFeatureHydrator,

realGraphViewerRelatedUsersFeatureHydrator,

sgsValidSocialContextFeatureHydrator,

TweetTimeFeatureHydrator,

topicCountryEngagementRealTimeAggregateFeatureHydrator,

topicEngagementRealTimeAggregateFeatureHydrator

)

override val scorers: Seq[Scorer[ScoredTweetsQuery, TweetCandidate]] = Seq(naviModelScorer)

}