

EventPass UG - Backend Data Model Specification

Generated: 2026-02-20 **Version:** 1.1 **Purpose:** Complete backend-ready variable and schema specification for database design, API contracts, and entity relationships.

Table of Contents

1. [Entity Overview](#)
 2. [Core Entities](#)
 3. [Financial Entities](#)
 4. [Analytics Entities](#)
 5. [Support Entities](#)
 6. [Enumerations](#)
 7. [Entity Relationships](#)
 8. [Naming Conventions](#)
 9. [Data Type Standards](#)
 10. [Audit Fields](#)
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Entity Overview

Entity	Description	Source Files
User	Platform users (attendees and organizers)	User.swift
OrganizerProfile	Extended profile for organizer role	OrganizerProfile.swift
Event	Events created by organizers	Event.swift
Venue	Event location details	Event.swift (embedded)
TicketType	Ticket tiers for events	TicketType.swift
Ticket	Purchased tickets	Ticket.swift
Order	Purchase transactions (inferred)	TicketRepository.swift
Payment	Payment transactions	PaymentRepository.swift
Refund	Refund requests and transactions	RefundModels.swift
RefundPolicy	Event refund policies	RefundModels.swift
Attendee	Event attendee records	Attendee.swift
CheckIn	Ticket scan/check-in records (inferred)	Ticket.swift
Notification	User notifications	NotificationModel.swift
NotificationPreferences	User notification settings	NotificationPreferences.swift
EventCancellation	Event cancellation records	CancellationModels.swift
CompensationPlan	Refund/credit plans for cancellations	CancellationModels.swift
OrganizerAnalytics	Event analytics data	OrganizerAnalytics.swift

UserInterests	User preference data	UserInterests.swift
UserLocation	User location data	UserPreferences.swift
SupportTicket	Customer support requests	SupportModels.swift
OnboardingProfile	Onboarding state	OnboardingModels.swift
ExportRecord	Export audit records (inferred)	EventReportExportService.swift
TicketSaleEvent	Real-time ticket sale notification	TicketRepository.swift
NotificationAnalyticsEvent	Notification engagement tracking	NotificationAnalyticsRepository.swift

Core Entities

Entity: User

Primary user account entity supporting dual-role (attendee/organizer) functionality.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	User.swift:47
firstName	String	Yes	User's first name	User.swift:48
lastName	String	Yes	User's last name	User.swift:49
email	String	No	Email address	User.swift:50
phoneNumber	String	No	Phone number	User.swift:53
profileImageUrl	String	No	Profile image URL	User.swift:52
role	UserRole	Yes	Primary role (legacy)	User.swift:51
dateJoined	Date	Yes	Account creation timestamp	User.swift:54
dateOfBirth	Date	No	Birth date (privacy-sensitive)	User.swift:85
city	String	No	User's city	User.swift:86
country	String	No	User's country	User.swift:87
isEmailVerified	Bool	Yes	Email verification status	User.swift:59
isPhoneVerified	Bool	Yes	Phone verification status	User.swift:60
authProviders	[String]	Yes	Auth methods used	User.swift:63
isVerified	Bool	Yes	ID verification status	User.swift:66
nationalIdNumber	String	No	National ID (encrypted)	User.swift:67
nationalIdFrontImageUrl	String	No	ID front image URL	User.swift:68
nationalIdBackImageUrl	String	No	ID back image URL	User.swift:69

verificationDate	Date	No	ID verification timestamp	User.swift:70
verificationDocumentType	VerificationDocumentType	No	Document type used	User.swift:71
primaryContactMethod	ContactMethod	No	Preferred contact method	User.swift:74
pendingEmail	String	No	Pending email change	User.swift:77
pendingPhoneNumber	String	No	Pending phone change	User.swift:78
hasCompletedOnboarding	Bool	Yes	Onboarding completion flag	User.swift:82
allowLocationTracking	Bool	Yes	Location opt-in	User.swift:89
isAttendeeRole	Bool	Yes	Can act as attendee	User.swift:103
isOrganizerRole	Bool	Yes	Can act as organizer	User.swift:104
isVerifiedOrganizer	Bool	Yes	ID verified for organizer	User.swift:105
currentActiveRole	UserRole	Yes	Currently active role	User.swift:106
favoriteEventIds	[UUID]	Yes	Favorited events	User.swift:55
followedOrganizerIds	[UUID]	Yes	Followed organizers	User.swift:56
viewedEventIds	[UUID]	Yes	Viewed events	User.swift:92
likedEventIds	[UUID]	Yes	Liked events	User.swift:93
purchasedEventIds	[UUID]	Yes	Purchased events	User.swift:94
favoriteEventTypes	[String]	Yes	Preferred event categories	User.swift:81
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred
deletedAt	Date	No	Backend: Soft delete	Inferred

Computed Properties (not stored):

- `fullName` - Concatenation of `firstName` + `lastName`
- `age` - Calculated from `dateOfBirth`
- `needsVerificationForOrganizerActions` - `isOrganizer && !isVerified`
- `availableRoles` - List of roles user can access
- `hasBothRoles` - `isAttendeeRole && isOrganizerRole`

Entity: OrganizerProfile

Extended profile data for users with organizer role.

Field	Type	Required	Description	Source
<code>id</code>	UUID	Yes	Backend: Primary key	Inferred

userId	UUID	Yes	Backend: Foreign key to User	Inferred
publicEmail	String	Yes	Public contact email	OrganizerProfile.swift:1
publicPhone	String	Yes	Public contact phone	OrganizerProfile.swift:1
brandName	String	No	Organization/brand name	OrganizerProfile.swift:1
website	String	No	Website URL	OrganizerProfile.swift:1
instagramHandle	String	No	Instagram username	OrganizerProfile.swift:1
twitterHandle	String	No	Twitter/X username	OrganizerProfile.swift:1
facebookPage	String	No	Facebook page URL	OrganizerProfile.swift:1
followerCount	Int	Yes	Number of followers	OrganizerProfile.swift:2
agreedToTermsDate	Date	No	Terms acceptance date	OrganizerProfile.swift:2
termsVersion	String	No	Terms version accepted	OrganizerProfile.swift:2
completedOnboardingSteps	[OrganizerOnboardingStep]	Yes	Completed steps	OrganizerProfile.swift:2
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: PayoutMethod

Payout configuration for organizers.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
organizerProfileId	UUID	Yes	Backend: Foreign key	Inferred
type	PayoutMethodType	Yes	Payout method type	OrganizerProfile.swift:35
phoneNumber	String	No	Mobile money number	OrganizerProfile.swift:36
bankName	String	No	Bank name	OrganizerProfile.swift:37

accountNumber	String	No	Bank account number	OrganizerProfile.swift:38
accountName	String	No	Account holder name	OrganizerProfile.swift:39
isVerified	Bool	Yes	Verification status	OrganizerProfile.swift:40
isDefault	Bool	Yes	Backend: Default method	Inferred
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: Event

Events created and managed by organizers.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	Event.swift:131
title	String	Yes	Event title	Event.swift:132
description	String	Yes	Event description	Event.swift:133
organizerId	UUID	Yes	Foreign key to User	Event.swift:134
organizerName	String	Yes	Denormalized organizer name	Event.swift:135
posterUrl	String	No	Poster image URL	Event.swift:136
category	EventCategory	Yes	Event category	Event.swift:137
startDate	Date	Yes	Event start datetime	Event.swift:138
endDate	Date	Yes	Event end datetime	Event.swift:139
venueId	UUID	Yes	Backend: Foreign key to Venue	Inferred
status	EventStatus	Yes	Event status	Event.swift:141
rating	Decimal	Yes	Average rating (0.0-5.0)	Event.swift:142
totalRatings	Int	Yes	Number of ratings	Event.swift:143
likeCount	Int	Yes	Number of likes	Event.swift:144
ageRestriction	AgeRestriction	Yes	Age restriction	Event.swift:147
createdAt	Date	Yes	Creation timestamp	Event.swift:145
updatedAt	Date	Yes	Last update timestamp	Event.swift:146
deletedAt	Date	No	Backend: Soft delete	Inferred
publishedAt	Date	No	Backend: Publish timestamp	Inferred
cancelledAt	Date	No	Backend: Cancellation timestamp	Inferred

Computed Properties (not stored):

- `isHappeningNow` - Event currently in progress
 - `isExpired` - Event has ended
 - `priceRange` - Formatted price range from ticket types
 - `timeCategory` - Today/This Week/This Month
-

Entity: Venue

Event venue/location details.

Field	Type	Required	Description	Source
<code>id</code>	UUID	Yes	Backend: Primary key	Inferred
<code>name</code>	String	Yes	Venue name	Event.swift:115
<code>address</code>	String	Yes	Street address	Event.swift:116
<code>city</code>	String	Yes	City	Event.swift:117
<code>latitude</code>	Decimal	Yes	GPS latitude	Event.swift:121
<code>longitude</code>	Decimal	Yes	GPS longitude	Event.swift:122
<code>country</code>	String	No	Backend: Country	Inferred
<code>postalCode</code>	String	No	Backend: Postal code	Inferred
<code>capacity</code>	Int	No	Backend: Venue capacity	Inferred
<code>createdAt</code>	Date	Yes	Backend: Record creation	Inferred
<code>updatedAt</code>	Date	Yes	Backend: Last update	Inferred

Entity: TicketType

Ticket tiers/types available for an event.

Field	Type	Required	Description	Source
<code>id</code>	UUID	Yes	Primary key	TicketType.swift:12
<code>eventId</code>	UUID	Yes	Backend: Foreign key to Event	Inferred
<code>name</code>	String	Yes	Ticket type name	TicketType.swift:13
<code>price</code>	Decimal	Yes	Price in UGX	TicketType.swift:14
<code>quantity</code>	Int	Yes	Total available	TicketType.swift:15
<code>sold</code>	Int	Yes	Number sold	TicketType.swift:16
<code>description</code>	String	No	Type description	TicketType.swift:17
<code>perks</code>	[String]	Yes	Benefits/perks list	TicketType.swift:18

saleStartDate	Date	Yes	Sale start datetime	TicketType.swift:19
saleEndDate	Date	Yes	Sale end datetime	TicketType.swift:20
isUnlimitedQuantity	Bool	Yes	Unlimited inventory	TicketType.swift:21
sortOrder	Int	Yes	Backend: Display order	Inferred
isActive	Bool	Yes	Backend: Active flag	Inferred
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Computed Properties (not stored):

- `remaining` - quantity - sold
 - `isSoldOut` - sold >= quantity
 - `availabilityStatus` - TicketAvailabilityStatus enum
 - `isAvailableForPurchase` - Active and in sale window
-

Entity: Ticket

Individual purchased ticket instances.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	Ticket.swift:17
ticketNumber	String	Yes	Unique ticket number	Ticket.swift:18
orderNumber	String	Yes	Order reference	Ticket.swift:19
eventId	UUID	Yes	Foreign key to Event	Ticket.swift:20
ticketTypeId	UUID	Yes	Backend: Foreign key to TicketType	Inferred
userId	UUID	Yes	Foreign key to User	Ticket.swift:33
purchaseDate	Date	Yes	Purchase timestamp	Ticket.swift:34
scanStatus	TicketScanStatus	Yes	Current scan status	Ticket.swift:35
scanDate	Date	No	Scan timestamp	Ticket.swift:36
qrCodeData	String	Yes	QR code payload	Ticket.swift:37
seatNumber	String	No	Assigned seat	Ticket.swift:38
userRating	Decimal	No	User's event rating	Ticket.swift:39
expiredAt	Date	No	Expiration timestamp	Ticket.swift:40
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Denormalized Fields (for offline/display):

Field	Type	Required	Description	Source
eventTitle	String	Yes	Event title	Ticket.swift:21
eventDate	Date	Yes	Event start date	Ticket.swift:22
eventEndDate	Date	Yes	Event end date	Ticket.swift:23
eventVenue	String	Yes	Venue name	Ticket.swift:24
eventVenueAddress	String	Yes	Venue address	Ticket.swift:25
eventVenueCity	String	Yes	Venue city	Ticket.swift:26
venueLatitude	Decimal	Yes	Venue latitude	Ticket.swift:27
venueLongitude	Decimal	Yes	Venue longitude	Ticket.swift:28
eventDescription	String	Yes	Event description	Ticket.swift:29
eventOrganizerName	String	Yes	Organizer name	Ticket.swift:30
eventPosterUrl	String	No	Poster URL	Ticket.swift:31

Note: Denormalized fields support offline ticket display without event fetch.

Entity: Order

Purchase transaction grouping tickets.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
orderNumber	String	Yes	Order reference number	Ticket.swift:19
userId	UUID	Yes	Foreign key to User	Inferred
eventId	UUID	Yes	Foreign key to Event	Inferred
totalAmount	Decimal	Yes	Order total in UGX	Inferred
currency	String	Yes	Currency code (UGX)	Inferred
status	OrderStatus	Yes	Order status	Inferred
paymentId	UUID	No	Foreign key to Payment	Inferred
ticketCount	Int	Yes	Number of tickets	Inferred
createdAt	Date	Yes	Order creation timestamp	Inferred
updatedAt	Date	Yes	Last update timestamp	Inferred

Entity: Attendee

Attendee records for event export/management.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	Attendee.swift:14
eventId	UUID	Yes	Foreign key to Event	Attendee.swift:15
ticketId	UUID	Yes	Foreign key to Ticket	Attendee.swift:16
orderId	String	Yes	Order reference	Attendee.swift:17
fullName	String	Yes	Attendee name	Attendee.swift:18
ticketType	String	Yes	Ticket type name	Attendee.swift:19
purchaseDate	Date	Yes	Purchase timestamp	Attendee.swift:20
checkInStatus	CheckInStatus	Yes	Check-in status	Attendee.swift:21
attendanceStatus	AttendanceStatus	Yes	Attendance status	Attendee.swift:22
isVip	Bool	Yes	VIP ticket holder	Attendee.swift:23
marketingConsent	Bool	Yes	Marketing opt-in	Attendee.swift:24

Privacy Note: Email and phone are intentionally NOT stored for privacy protection.

Financial Entities

Entity: Payment

Payment transaction records.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	PaymentRepository.swift:25
amount	Decimal	Yes	Payment amount	PaymentRepository.swift:26
currency	String	Yes	Currency code (UGX)	PaymentRepository.swift:27
method	PaymentMethod	Yes	Payment method used	PaymentRepository.swift:28
status	PaymentStatus	Yes	Payment status	PaymentRepository.swift:29
userId	UUID	Yes	Foreign key to User	PaymentRepository.swift:30
eventId	UUID	Yes	Foreign key to Event	PaymentRepository.swift:31
ticketIds	[UUID]	Yes	Associated ticket IDs	PaymentRepository.swift:32
mobileMoneyNumber	String	No	Mobile money number	PaymentRepository.swift:34
transactionReference	String	No	Backend: External reference	Inferred
providerResponse	JSON	No	Backend: Provider response	Inferred
timestamp	Date	Yes	Payment timestamp	PaymentRepository.swift:33

processedAt	Date	No	Backend: Processing timestamp	Inferred
failedAt	Date	No	Backend: Failure timestamp	Inferred
failureReason	String	No	Backend: Failure reason	Inferred
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: RefundPolicy

Event refund policy configuration.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	RefundModels.swift:95
eventId	UUID	Yes	Foreign key to Event	RefundModels.swift:96
ticketTypeId	UUID	No	Optional ticket type	RefundModels.swift:97
isRefundable	Bool	Yes	Refunds allowed	RefundModels.swift:98
refundDeadlineHours	Int	Yes	Hours before event	RefundModels.swift:99
refundPercentage	Decimal	Yes	Refund percentage (0.0-1.0)	RefundModels.swift:100
processingFeePercentage	Decimal	Yes	Fee percentage	RefundModels.swift:101
fullRefundDeadlineHours	Int	No	Full refund cutoff	RefundModels.swift:102
partialRefundDeadlineHours	Int	No	Partial refund cutoff	RefundModels.swift:103
partialRefundPercentage	Decimal	No	Partial percentage	RefundModels.swift:104
allowRescheduledEventRefund	Bool	Yes	Allow on reschedule	RefundModels.swift:105
allowTransfer	Bool	Yes	Allow ticket transfer	RefundModels.swift:106
requiresApproval	Bool	Yes	Manual approval needed	RefundModels.swift:107
maxRefundsPerUser	Int	No	User refund limit	RefundModels.swift:108
policyText	String	Yes	Full policy text	RefundModels.swift:109
createdAt	Date	Yes	Creation timestamp	RefundModels.swift:110
updatedAt	Date	Yes	Update timestamp	RefundModels.swift:111

Entity: RefundRequest

Refund request records.

Field	Type	Required	Description	Source

id	UUID	Yes	Primary key	RefundModels.swift:118
ticketId	UUID	Yes	Foreign key to Ticket	RefundModels.swift:119
ticketNumber	String	Yes	Ticket number	RefundModels.swift:120
eventId	UUID	Yes	Foreign key to Event	RefundModels.swift:121
eventTitle	String	Yes	Event title	RefundModels.swift:122
userId	UUID	Yes	Foreign key to User	RefundModels.swift:123
userName	String	Yes	User name	RefundModels.swift:124
userEmail	String	No	User email	RefundModels.swift:125
userPhone	String	No	User phone	RefundModels.swift:126
reason	RefundReason	Yes	Refund reason	RefundModels.swift:127
userNote	String	No	User's note	RefundModels.swift:128
requestedAmount	Decimal	Yes	Requested amount	RefundModels.swift:129
approvedAmount	Decimal	No	Approved amount	RefundModels.swift:130
currency	String	Yes	Currency code	RefundModels.swift:131
originalPaymentMethod	RefundPaymentMethod	Yes	Original payment	RefundModels.swift:132
originalPaymentReference	String	Yes	Payment reference	RefundModels.swift:133
originalPurchaseDate	Date	Yes	Purchase date	RefundModels.swift:134
status	RefundStatus	Yes	Request status	RefundModels.swift:135
requestedAt	Date	Yes	Request timestamp	RefundModels.swift:136
reviewedAt	Date	No	Review timestamp	RefundModels.swift:137
reviewedBy	UUID	No	Reviewer user ID	RefundModels.swift:138
reviewerNote	String	No	Reviewer's note	RefundModels.swift:139
processedAt	Date	No	Processing timestamp	RefundModels.swift:140
completedAt	Date	No	Completion timestamp	RefundModels.swift:141
failureReason	String	No	Failure reason	RefundModels.swift:142

Entity: RefundTransaction

Executed refund transaction records.

Field	Type	Required	Description	Source

id	UUID	Yes	Primary key	RefundModels.swift:163
refundRequestId	UUID	Yes	Foreign key to RefundRequest	RefundModels.swift:164
ticketId	UUID	Yes	Foreign key to Ticket	RefundModels.swift:165
eventId	UUID	Yes	Foreign key to Event	RefundModels.swift:166
userId	UUID	Yes	Foreign key to User	RefundModels.swift:167
organizerId	UUID	Yes	Foreign key to Organizer	RefundModels.swift:168
originalAmount	Decimal	Yes	Original ticket price	RefundModels.swift:169
refundAmount	Decimal	Yes	Refund amount	RefundModels.swift:170
processingFee	Decimal	Yes	Processing fee	RefundModels.swift:171
netRefund	Decimal	Yes	Net refund amount	RefundModels.swift:172
currency	String	Yes	Currency code	RefundModels.swift:173
paymentMethod	RefundPaymentMethod	Yes	Payment method	RefundModels.swift:174
paymentReference	String	Yes	Payment reference	RefundModels.swift:175
transactionReference	String	Yes	External reference	RefundModels.swift:176
status	RefundStatus	Yes	Transaction status	RefundModels.swift:177
reason	RefundReason	Yes	Refund reason	RefundModels.swift:178
initiatedAt	Date	Yes	Initiation timestamp	RefundModels.swift:179
processedAt	Date	No	Processing timestamp	RefundModels.swift:180
completedAt	Date	No	Completion timestamp	RefundModels.swift:181
failedAt	Date	No	Failure timestamp	RefundModels.swift:182
failureReason	String	No	Failure reason	RefundModels.swift:183
processedBy	UUID	No	Processor user/system ID	RefundModels.swift:184
notes	String	No	Additional notes	RefundModels.swift:185

Entity: EventCancellation

Event cancellation records.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	CancellationModels.swift:138
eventId	UUID	Yes	Foreign key to Event	CancellationModels.swift:139
eventTitle	String	Yes	Event title	CancellationModels.swift:140

organizerId	UUID	Yes	Foreign key to Organizer	CancellationModels.swift:141
reason	CancellationReason	Yes	Cancellation reason	CancellationModels.swift:142
reasonNote	String	No	Additional note	CancellationModels.swift:143
status	CancellationStatus	Yes	Cancellation status	CancellationModels.swift:144
createdAt	Date	Yes	Creation timestamp	CancellationModels.swift:147
confirmedAt	Date	No	Confirmation timestamp	CancellationModels.swift:148
processingStartedAt	Date	No	Processing start	CancellationModels.swift:149
completedAt	Date	No	Completion timestamp	CancellationModels.swift:150
initiatedBy	UUID	Yes	Initiator user ID	CancellationModels.swift:151
confirmedBy	UUID	No	Confirming user ID	CancellationModels.swift:152
confirmationCode	String	No	Confirmation code	CancellationModels.swift:153
refundRequestsCreated	Int	Yes	Refund requests created	CancellationModels.swift:154
refundsProcessed	Int	Yes	Refunds completed	CancellationModels.swift:155
refundsFailed	Int	Yes	Refunds failed	CancellationModels.swift:156
notificationsSent	Int	Yes	Notifications sent	CancellationModels.swift:157
notificationsFailed	Int	Yes	Notifications failed	CancellationModels.swift:158

Entity: CancellationImpact

Cancellation financial impact snapshot.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
eventId	UUID	Yes	Foreign key to Event	CancellationModels.swift:31
cancellationId	UUID	Yes	Backend: Foreign key	Inferred
calculatedAt	Date	Yes	Calculation timestamp	CancellationModels.swift:32
ticketsSold	Int	Yes	Total tickets sold	CancellationModels.swift:35
attendeesCount	Int	Yes	Unique attendees	CancellationModels.swift:36
vipTickets	Int	Yes	VIP ticket count	CancellationModels.swift:37
regularTickets	Int	Yes	Regular ticket count	CancellationModels.swift:38
checkInsCompleted	Int	Yes	Checked-in count	CancellationModels.swift:39

pendingPayments	Int	Yes	Pending payments	CancellationModels.swift:40
transferredTickets	Int	Yes	Transferred tickets	CancellationModels.swift:41
partiallyRefundedTickets	Int	Yes	Partially refunded	CancellationModels.swift:42
grossRevenue	Decimal	Yes	Total revenue	CancellationModels.swift:45
refundTotal	Decimal	Yes	Total refunds	CancellationModels.swift:46
platformFeesRetained	Decimal	Yes	Retained fees	CancellationModels.swift:47
processingFeesEstimate	Decimal	Yes	Processing fees	CancellationModels.swift:48
netRefundAmount	Decimal	Yes	Net refund	CancellationModels.swift:49
organizerPayoutAdjustment	Decimal	Yes	Payout adjustment	CancellationModels.swift:50
currency	String	Yes	Currency code	CancellationModels.swift:51

Entity: CompensationPlan

Compensation configuration for cancellations.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	CancellationModels.swift:95
eventId	UUID	Yes	Foreign key to Event	CancellationModels.swift:96
cancellationId	UUID	Yes	Backend: Foreign key	Inferred
compensationType	CompensationType	Yes	Compensation type	CancellationModels.swift:97
refundPercentage	Decimal	Yes	Refund percentage (0.0-1.0)	CancellationModels.swift:98
creditMultiplier	Decimal	No	Credit bonus (e.g., 1.1)	CancellationModels.swift:99
processingMethod	ProcessingMethod	Yes	Processing method	CancellationModels.swift:100
processingDeadline	Date	Yes	Processing deadline	CancellationModels.swift:101
totalRefundAmount	Decimal	Yes	Total refund amount	CancellationModels.swift:102
platformFeeHandling	PlatformFeeHandling	Yes	Fee handling	CancellationModels.swift:103
estimatedProcessingFees	Decimal	Yes	Estimated fees	CancellationModels.swift:104
organizerNote	String	No	Public organizer note	CancellationModels.swift:105

internalNote	String	No	Internal note	CancellationModels.swift:106
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Analytics Entities

Entity: OrganizerAnalytics

Event analytics snapshot.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	OrganizerAnalytics.swift:13
eventId	UUID	Yes	Foreign key to Event	OrganizerAnalytics.swift:14
eventTitle	String	Yes	Event title	OrganizerAnalytics.swift:15
lastUpdated	Date	Yes	Last calculation	OrganizerAnalytics.swift:16
revenue	Decimal	Yes	Total revenue	OrganizerAnalytics.swift:19
ticketsSold	Int	Yes	Tickets sold	OrganizerAnalytics.swift:20
totalCapacity	Int	Yes	Total capacity	OrganizerAnalytics.swift:21
attendanceRate	Decimal	Yes	Attendance rate (0.0-1.0)	OrganizerAnalytics.swift:22
capacityUsed	Decimal	Yes	Capacity used (0.0-1.0)	OrganizerAnalytics.swift:23
salesTarget	Decimal	Yes	Sales target	OrganizerAnalytics.swift:24
salesProgress	Decimal	Yes	Progress (0.0-1.0)	OrganizerAnalytics.swift:25
ticketVelocity	Decimal	Yes	Tickets per hour	OrganizerAnalytics.swift:30
dailySalesAverage	Decimal	Yes	Daily average	OrganizerAnalytics.swift:32
peakSalesDay	String	No	Peak sales day	OrganizerAnalytics.swift:33
totalAttendees	Int	Yes	Total attendees	OrganizerAnalytics.swift:36
repeatAttendees	Int	Yes	Repeat attendees	OrganizerAnalytics.swift:37
repeatRate	Decimal	Yes	Repeat rate (0.0-1.0)	OrganizerAnalytics.swift:38
vipShare	Decimal	Yes	VIP percentage (0.0-1.0)	OrganizerAnalytics.swift:39
eventViews	Int	Yes	Total views	OrganizerAnalytics.swift:44
uniqueViews	Int	Yes	Unique views	OrganizerAnalytics.swift:45
conversionRate	Decimal	Yes	Conversion rate (0.0-1.0)	OrganizerAnalytics.swift:46

shareCount	Int	Yes	Share count	OrganizerAnalytics.swift:49
saveCount	Int	Yes	Save/favorite count	OrganizerAnalytics.swift:50
checkinRate	Decimal	Yes	Check-in rate (0.0-1.0)	OrganizerAnalytics.swift:53
peakArrivalTime	String	No	Peak arrival time	OrganizerAnalytics.swift:54
averageArrivalTime	String	No	Average arrival	OrganizerAnalytics.swift:55
queueEstimate	Int	Yes	Queue wait (minutes)	OrganizerAnalytics.swift:56
grossRevenue	Decimal	Yes	Gross revenue	OrganizerAnalytics.swift:60
netRevenue	Decimal	Yes	Net revenue	OrganizerAnalytics.swift:61
platformFees	Decimal	Yes	Platform fees	OrganizerAnalytics.swift:62
processingFees	Decimal	Yes	Processing fees	OrganizerAnalytics.swift:63
refundsTotal	Decimal	Yes	Total refunds	OrganizerAnalytics.swift:64
refundsCount	Int	Yes	Refund count	OrganizerAnalytics.swift:65
revenueForecast	Decimal	No	Revenue forecast	OrganizerAnalytics.swift:69
healthScore	Int	Yes	Health score (0-100)	OrganizerAnalytics.swift:70

Entity: SalesDataPoint

Time-series sales data.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	OrganizerAnalytics.swift:122
analyticsId	UUID	Yes	Backend: Foreign key	Inferred
date	Date	Yes	Data point date	OrganizerAnalytics.swift:123
sales	Int	Yes	Sales count	OrganizerAnalytics.swift:124
revenue	Decimal	Yes	Revenue amount	OrganizerAnalytics.swift:125

Entity: TierSalesData

Per-ticket-type sales analytics.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	OrganizerAnalytics.swift:136
analyticsId	UUID	Yes	Backend: Foreign key	Inferred
tierName	String	Yes	Ticket type name	OrganizerAnalytics.swift:137
sold	Int	Yes	Tickets sold	OrganizerAnalytics.swift:138

capacity	Int	Yes	Tier capacity	OrganizerAnalytics.swift:139
revenue	Decimal	Yes	Tier revenue	OrganizerAnalytics.swift:140
price	Decimal	Yes	Ticket price	OrganizerAnalytics.swift:141
color	String	Yes	Display color (hex)	OrganizerAnalytics.swift:142

Entity: PaymentMethodData

Payment method breakdown analytics.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	OrganizerAnalytics.swift:298
analyticsId	UUID	Yes	Backend: Foreign key	Inferred
method	String	Yes	Payment method name	OrganizerAnalytics.swift:299
amount	Decimal	Yes	Total amount	OrganizerAnalytics.swift:300
count	Int	Yes	Transaction count	OrganizerAnalytics.swift:301
percentage	Decimal	Yes	Percentage (0.0-1.0)	OrganizerAnalytics.swift:302
color	String	Yes	Display color (hex)	OrganizerAnalytics.swift:303
icon	String	Yes	SF Symbol icon	OrganizerAnalytics.swift:304

Entity: ExportRecord

Export audit trail.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
eventId	UUID	Yes	Foreign key to Event	EventReportExportService.swift
userId	UUID	Yes	Backend: Exporter user ID	Inferred
exportType	String	Yes	Export type (report/attendee)	EventReportExportService.swift
format	String	Yes	File format (pdf/csv)	EventReportExportService.swift
filterType	String	No	Filter applied	AttendeeExportService.swift
recordCount	Int	No	Records exported	AttendeeExportService.swift
fileSize	Int	No	Backend: File size bytes	Inferred
exportedAt	Date	Yes	Export timestamp	EventReportExportService.swift

Support Entities

Entity: Notification

User notification records.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	NotificationModel.swift:11
type	NotificationType	Yes	Notification type	NotificationModel.swift:12
title	String	Yes	Notification title	NotificationModel.swift:13
message	String	Yes	Notification body	NotificationModel.swift:14
timestamp	Date	Yes	Creation timestamp	NotificationModel.swift:15
isRead	Bool	Yes	Read status	NotificationModel.swift:16
relatedEventId	UUID	No	Related event	NotificationModel.swift:17
relatedTicketId	UUID	No	Related ticket	NotificationModel.swift:18
relatedUserId	UUID	No	Related user	NotificationModel.swift:19
recipientUserId	UUID	Yes	Backend: Recipient	Inferred
deliveredAt	Date	No	Backend: Delivery timestamp	Inferred
openedAt	Date	No	Backend: Open timestamp	Inferred

Entity: NotificationPreferences

User notification settings.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
userId	UUID	Yes	Backend: Foreign key to User	Inferred
isEnabled	Bool	Yes	Master toggle	UserPreferences.swift:71
eventReminders24h	Bool	Yes	24h reminder	UserPreferences.swift:72
eventReminders2h	Bool	Yes	2h reminder	UserPreferences.swift:73
eventReminders30m	Bool	No	30m reminder	UserPreferences.swift:74
eventStartingSoon	Bool	Yes	Starting soon alert	UserPreferences.swift:75
ticketPurchaseConfirmation	Bool	Yes	Purchase confirmation	UserPreferences.swift:76
eventUpdates	Bool	Yes	Event updates	UserPreferences.swift:77
recommendations	Bool	Yes	Recommendations	UserPreferences.swift:78
marketing	Bool	Yes	Marketing opt-in	UserPreferences.swift:79

organizerTicketSold	Bool	No	Organizer: ticket sold	UserPreferences.swift:80
organizerLowInventory	Bool	No	Organizer: low stock	UserPreferences.swift:81
organizerCheckIns	Bool	No	Organizer: check-ins	UserPreferences.swift:82
organizerEventReminders	Bool	No	Organizer: reminders	UserPreferences.swift:83
quietHoursEnabled	Bool	Yes	Quiet hours on	UserPreferences.swift:84
quietHoursStartHour	Int	Yes	Start hour (0-23)	UserPreferences.swift:85
quietHoursStartMinute	Int	Yes	Start minute (0-59)	UserPreferences.swift:85
quietHoursEndHour	Int	Yes	End hour (0-23)	UserPreferences.swift:86
quietHoursEndMinute	Int	Yes	End minute (0-59)	UserPreferences.swift:86
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: UserInterests

User preference and behavior data.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
userId	UUID	Yes	Backend: Foreign key to User	Inferred
preferredCategories	[EventCategory]	Yes	Selected categories	UserInterests.swift:14
inferredCategories	[EventCategory]	Yes	Behavior-inferred	UserInterests.swift:15
preferredCities	[String]	Yes	Preferred cities	UserInterests.swift:16
maxTravelDistance	Decimal	No	Max distance (km)	UserInterests.swift:17
preferredEventTypes	[String]	Yes	Free-form types	UserInterests.swift:18
pricePreference	PricePreference	No	Price range	UserInterests.swift:19
prefersFreeEvents	Bool	Yes	Free events interest	UserInterests.swift:20
preferredDaysOfWeek	[Int]	Yes	Preferred days (0-6)	UserInterests.swift:21
preferredTimeOfDay	[TimeOfDayPreference]	Yes	Preferred times	UserInterests.swift:22
prefersPopularEvents	Bool	Yes	Popular events interest	UserInterests.swift:24
lastUpdated	Date	Yes	Last update timestamp	UserInterests.swift:28

Entity: UserLocation

User location data.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
userId	UUID	Yes	Backend: Foreign key to User	Inferred
city	String	Yes	City name	UserPreferences.swift:17
country	String	Yes	Country name	UserPreferences.swift:18
latitude	Decimal	Yes	GPS latitude	UserPreferences.swift:20
longitude	Decimal	Yes	GPS longitude	UserPreferences.swift:21
lastUpdated	Date	Yes	Last update timestamp	UserPreferences.swift:22

Entity: SupportTicket

Customer support request records.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	SupportModels.swift:41
name	String	Yes	User's name	SupportModels.swift:42
contactInfo	String	Yes	Contact information	SupportModels.swift:43
category	SupportCategory	Yes	Support category	SupportModels.swift:44
description	String	Yes	Issue description	SupportModels.swift:45
attachmentUrl	String	No	Attachment URL	SupportModels.swift:46
appVersion	String	Yes	App version	SupportModels.swift:47
deviceModel	String	Yes	Device model	SupportModels.swift:48
iosVersion	String	Yes	iOS version	SupportModels.swift:49
userId	String	Yes	User ID	SupportModels.swift:50
createdAt	Date	Yes	Creation timestamp	SupportModels.swift:51
status	TicketStatus	Yes	Backend: Ticket status	Inferred
assignedTo	UUID	No	Backend: Assigned agent	Inferred
resolvedAt	Date	No	Backend: Resolution timestamp	Inferred
resolution	String	No	Backend: Resolution notes	Inferred

Entity: SavedPaymentMethod

User saved payment methods.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	NotificationPreferences.swift:32
userId	UUID	Yes	Backend: Foreign key to User	Inferred
type	PaymentMethodType	Yes	Payment type	NotificationPreferences.swift:33
isDefault	Bool	Yes	Default method	NotificationPreferences.swift:34
displayName	String	Yes	Display name	NotificationPreferences.swift:35
mobileMoneyNumber	String	No	Mobile money number	NotificationPreferences.swift:36
lastFourDigits	String	No	Card last 4 digits	NotificationPreferences.swift:37
cardBrand	String	No	Card brand	NotificationPreferences.swift:38
expiryMonth	Int	No	Card expiry month	NotificationPreferences.swift:39
expiryYear	Int	No	Card expiry year	NotificationPreferences.swift:40
cardholderName	String	No	Cardholder name	NotificationPreferences.swift:41
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: OnboardingProfile

Onboarding state persistence.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
userId	UUID	Yes	Backend: Foreign key to User	Inferred
role	UserRole	No	Selected role	OnboardingModels.swift
fullName	String	Yes	User's full name	OnboardingModels.swift
dateOfBirth	Date	No	Birth date	OnboardingModels.swift
interests	[InterestCategory]	Yes	Event interests	OnboardingModels.swift
eventTypes	[OrganizerEventType]	Yes	Organizer event types	OnboardingModels.swift
notificationsEnabled	Bool	Yes	Notification opt-in	OnboardingModels.swift
completed	Bool	Yes	Completion flag	OnboardingModels.swift

completedAt	Date	No	Backend: Completion timestamp	Inferred
createdAt	Date	Yes	Backend: Record creation	Inferred
updatedAt	Date	Yes	Backend: Last update	Inferred

Entity: TicketSaleEvent

Real-time ticket sale notification for organizer dashboards.

Field	Type	Required	Description	Source
id	UUID	Yes	Backend: Primary key	Inferred
eventId	UUID	Yes	Foreign key to Event	TicketRepository.swift:27
eventTitle	String	Yes	Event title	TicketRepository.swift:28
ticketType	String	Yes	Ticket type name	TicketRepository.swift:29
quantity	Int	Yes	Tickets purchased	TicketRepository.swift:30
totalAmount	Decimal	Yes	Sale total amount	TicketRepository.swift:31
timestamp	Date	Yes	Sale timestamp	TicketRepository.swift:32
organizerId	UUID	Yes	Backend: Organizer to notify	Inferred

Note: Used for real-time WebSocket/push notifications to organizer dashboard.

Entity: NotificationAnalyticsEvent

Notification engagement tracking for analytics.

Field	Type	Required	Description	Source
id	UUID	Yes	Primary key	NotificationAnalyticsRepository.swift:14
type	String	Yes	Notification type	NotificationAnalyticsRepository.swift:15
action	NotificationAction	Yes	Action taken	NotificationAnalyticsRepository.swift:16
eventId	UUID	No	Related event	NotificationAnalyticsRepository.swift:17
userId	UUID	Yes	User ID	NotificationAnalyticsRepository.swift:18
timestamp	Date	Yes	Action timestamp	NotificationAnalyticsRepository.swift:19

Enumerations

User & Auth Enums

UserRole:

- attendee
- organizer

ContactMethod:

- email
- phone

VerificationDocumentType:

- nationalId
- passport

OrganizerOnboardingStep:

- profileCompletion
- identityVerification
- contactInformation
- payoutSetup
- termsAgreement

Event Enums

EventCategory:

- music
- artsCulture
- concerts
- sportsWellness
- technology
- fundraising
- comedy
- poetry
- drama
- exhibitions
- networking
- education
- food
- nightlife
- festivals
- other

EventStatus:

- draft
- published
- ongoing
- completed
- cancelled

AgeRestriction:

- none (0)
- thirteen (13)
- sixteen (16)
- eighteen (18)

- twentyOne (21)

TimeCategory:

- today
- thisWeek
- thisMonth

Ticket Enums

TicketScanStatus:

- unused
- scanned
- expired

TicketAvailabilityStatus:

- upcoming
- active
- expired
- soldOut

CheckInStatus:

- notCheckedIn
- checkedIn
- noShow

AttendanceStatus:

- expected
- attended
- absent

Payment Enums

PaymentMethod:

- mtnMomo
- airtelMoney
- card

PaymentStatus:

- pending
- processing
- completed
- failed
- refunded

PaymentMethodType:

- mtnMomo
- airtelMoney
- card
- cash

PayoutMethodType:

- mtnMomo
- airtelMoney
- bankAccount

Refund Enums

RefundStatus:

- pending
- approved
- rejected
- processing
- completed
- failed

RefundReason:

- eventCancelled
- eventRescheduled
- cannotAttend
- duplicatePurchase
- organizerDecision
- fraudulent
- ticketDowngrade
- other

RefundPaymentMethod:

- mtnMobileMoney
- airtelMoney
- card
- bankTransfer
- wallet

TicketRefundState:

- none
- eligible
- requested
- approved
- rejected
- processing
- refunded

Cancellation Enums

CancellationStatus:

- draft
- confirming
- processing
- completed
- failed

CancellationReason:

- organizerDecision

- venueIssue
- forceMajeure
- regulation
- lowSales
- duplicate
- adminAction

CompensationType:

- fullRefund
- partialRefund
- eventCredit

ProcessingMethod:

- automatic
- manual
- hybrid

PlatformFeeHandling:

- waive
- deduct
- organizerPays

Notification Enums

NotificationType:

- eventReminder
- ticketPurchased
- eventUpdate
- newEvent
- ticketScanned
- paymentReceived
- newFollower

PushNotificationType:

- eventReminder24h
- eventReminder2h
- eventReminder30m
- eventStartingSoon
- ticketPurchase
- eventUpdate
- recommendation
- marketing
- ticketSold
- lowInventory
- attendeeCheckIn
- organizerEventStart

User Preference Enums

PricePreference:

- free

- budget
- moderate
- premium
- any

TimeOfDayPreference:

- morning (6-12)
- afternoon (12-17)
- evening (17-21)
- night (21-6)

SupportCategory:

- payments
- ticketNotFound
- qrScanning
- accountIssues
- organizerSupport
- other

Onboarding Enums

InterestCategory (Attendee preferences):

- music
- festivals
- concerts
- nightlife
- sports
- arts
- comedy
- food
- networking
- technology
- education
- wellness

OrganizerEventType (Organizer focus areas):

- concerts
- festivals
- clubNights
- conferences
- workshops
- exhibitions
- sports
- charity
- corporate
- private

OnboardingStep:

- welcome (0)
- roleSelection (1)
- basicInfo (2)
- personalization (3)

- permissions (4)
- completion (5)

Notification Analytics Enums

NotificationAction:

- scheduled
- delivered
- opened
- dismissed

Export Enums

EventReportExportFormat:

- pdf
- csv

AttendeeExportFilter:

- all
- checkedIn
- notCheckedIn
- vipOnly

Analytics Enums

AlertType:

- lowSales
- highDemand
- nearSellOut
- revenueForecast
- slowSales
- pricingOpportunity
- refundSpike
- capacityWarning

AlertSeverity:

- info
- warning
- success
- critical

Entity Relationships

Primary Relationships

User 1 ↔ 1 OrganizerProfile (optional)
User 1 ↔ 1 UserInterests
User 1 ↔ 1 UserLocation (optional)
User 1 ↔ 1 NotificationPreferences
User 1 ↔ * SavedPaymentMethod

```

User 1 ↔ * Ticket (as buyer)
User 1 ↔ * Event (as organizer)
User 1 ↔ * Notification
User 1 ↔ * RefundRequest
User 1 ↔ * Order
User 1 ↔ * Payment

OrganizerProfile 1 ↔ * PayoutMethod

Event 1 ↔ 1 Venue
Event 1 ↔ * TicketType
Event 1 ↔ * Ticket
Event 1 ↔ * Attendee
Event 1 ↔ * RefundPolicy
Event 1 ↔ 1 OrganizerAnalytics
Event 1 ↔ 0..1 EventCancellation

TicketType 1 ↔ * Ticket

Ticket 1 ↔ 1 Order
Ticket 1 ↔ 0..1 RefundRequest
Ticket 1 ↔ 0..1 Attendee
Ticket 1 ↔ 0..1 CheckIn (via scanStatus)

Order 1 ↔ * Ticket
Order 1 ↔ 1 Payment

Payment 1 ↔ 0..1 RefundTransaction

RefundRequest 1 ↔ 0..1 RefundTransaction
RefundRequest 1 ↔ * RefundStatusChange

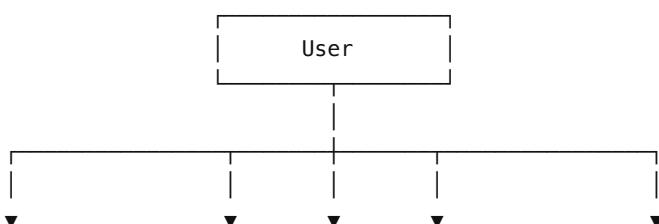
EventCancellation 1 ↔ 1 CancellationImpact
EventCancellation 1 ↔ 1 CompensationPlan
EventCancellation 1 ↔ * RefundRequest (via eventId)

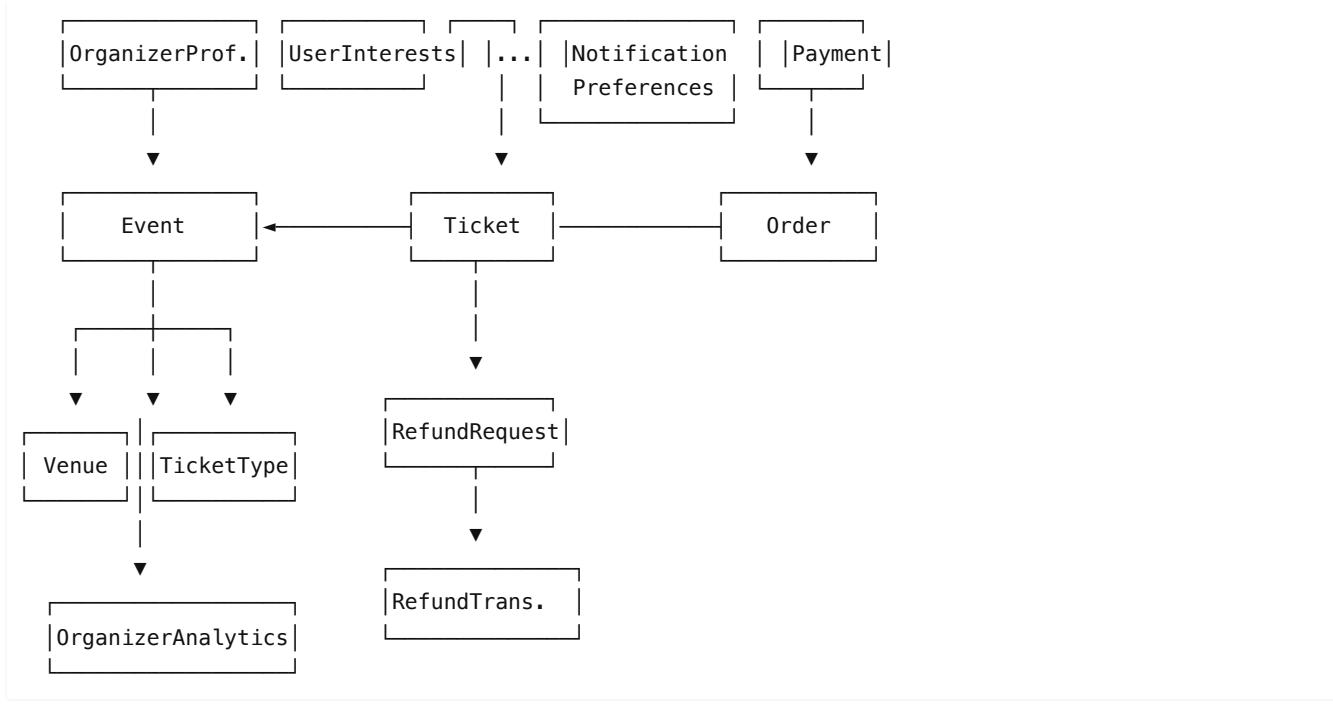
OrganizerAnalytics 1 ↔ * SalesDataPoint
OrganizerAnalytics 1 ↔ * TierSalesData
OrganizerAnalytics 1 ↔ * PaymentMethodData

Event 1 ↔ * TicketSaleEvent
User 1 ↔ * NotificationAnalyticsEvent

```

Relationship Diagram (Simplified)





Naming Conventions

Entity Naming

- **Singular nouns:** User, Event, Ticket (not Users, Events, Tickets)
- **PascalCase** for entity names
- **Compound names:** TicketType, RefundRequest, OrganizerProfile

Field Naming

- **camelCase** for all field names
- **ID suffix:** userId, eventId, ticketTypeId
- **Boolean prefix:** is, has, allows, can (e.g., isVerified, hasCompletedOnboarding)
- **Date suffix:** At for timestamps (e.g., createdAt, deletedAt, processedAt)
- **URL suffix:** Url (e.g., posterUrl, profileImageUrl)

Enum Naming

- **PascalCase** for enum type names
- **camelCase** for enum values
- **Raw values:** String for serialization compatibility

Data Type Standards

Primary Keys

- **Type:** UUID (String format)
- **Format:** Standard UUID v4 (e.g., "550e8400-e29b-41d4-a716-446655440000")

Dates

- **Type:** Date
- **Format:** ISO 8601 (e.g., "2026-02-20T15:30:00Z")

- **Timezone:** UTC for storage, localized for display

Money/Currency

- **Type:** Decimal (not Double/Float)
- **Precision:** 2 decimal places
- **Currency:** Stored separately as String (default "UGX")
- **Storage:** Store in smallest unit (cents) as Integer for precision

Percentages

- **Type:** Decimal
- **Range:** 0.0 to 1.0 (not 0-100)
- **Display:** Multiply by 100 for UI

Coordinates

- **Type:** Decimal
- **Precision:** 6 decimal places
- **Range:** Latitude (-90 to 90), Longitude (-180 to 180)

Phone Numbers

- **Type:** String
- **Format:** E.164 (e.g., "+256771234567")

Email Addresses

- **Type:** String
 - **Validation:** RFC 5322 compliant
-

Audit Fields

All entities should include these standard audit fields:

Field	Type	Required	Description
createdAt	Date	Yes	Record creation timestamp
updatedAt	Date	Yes	Last modification timestamp
deletedAt	Date	No	Soft delete timestamp (null = active)
createdBy	UUID	No	Creator user ID
updatedBy	UUID	No	Last modifier user ID

Soft Delete Strategy

- Use `deletedAt` field for soft deletes
- Query with `WHERE deletedAt IS NULL` for active records
- Cascade soft deletes where appropriate (e.g., Event → TicketTypes)

Versioning (Optional)

For entities requiring version tracking:

Field	Type	Description

version	Int	Optimistic locking version
previousVersionId	UUID	Link to previous version

Index Recommendations

High-Priority Indexes

```
-- User lookups
CREATE INDEX idx_user_email ON User(email);
CREATE INDEX idx_user_phone ON User(phoneNumber);

-- Event queries
CREATE INDEX idx_event_organizer ON Event(organizerId);
CREATE INDEX idx_event_status ON Event(status);
CREATE INDEX idx_event_category ON Event(category);
CREATE INDEX idx_event_dates ON Event(startDate, endDate);
CREATE INDEX idx_event_city ON Event(venueId); -- via Venue.city

-- Ticket queries
CREATE INDEX idx_ticket_event ON Ticket(eventId);
CREATE INDEX idx_ticket_user ON Ticket(userId);
CREATE INDEX idx_ticket_order ON Ticket(orderNumber);
CREATE INDEX idx_ticket_status ON Ticket(scanStatus);

-- Payment queries
CREATE INDEX idx_payment_user ON Payment(userId);
CREATE INDEX idx_payment_event ON Payment(eventId);
CREATE INDEX idx_payment_status ON Payment(status);

-- Refund queries
CREATE INDEX idx_refund_ticket ON RefundRequest(ticketId);
CREATE INDEX idx_refund_event ON RefundRequest(eventId);
CREATE INDEX idx_refund_status ON RefundRequest(status);

-- Notification queries
CREATE INDEX idx_notification_user ON Notification(recipientUserId);
CREATE INDEX idx_notification_read ON Notification(isRead);
CREATE INDEX idx_notification_type ON Notification(type);
```

Validation Rules

User

- email : Valid email format (RFC 5322)
- phoneNumber : Valid E.164 format
- firstName , lastName : 2-50 characters
- dateOfBirth : Must be at least 13 years ago

Event

- `title` : 3-100 characters
- `description` : 10-5000 characters
- `startDate` : Must be in the future (for new events)
- `endDate` : Must be after `startDate`
- `category` : Must be valid `EventCategory`

TicketType

- `name` : 2-50 characters
- `price` : ≥ 0
- `quantity` : > 0 (unless `isUnlimitedQuantity`)
- `saleStartDate` : Before `saleEndDate`
- `saleEndDate` : Before or equal to `event.startDate`

Payment

- `amount` : > 0
- `mobileMoneyNumber` : Valid format for selected method

Refund

- `requestedAmount` : \leq original ticket price
- `approvedAmount` : \leq `requestedAmount`

Security Considerations

Sensitive Fields (Encrypt at Rest)

- `User.nationalIdNumber`
- `PayoutMethod.accountNumber`
- `SavedPaymentMethod.mobileMoneyNumber`
- `SavedPaymentMethod.cardholderName`

PII Fields (Access Control Required)

- `User.email`
- `User.phoneNumber`
- `User.dateOfBirth`
- `User.nationalIdFrontImageUrl`
- `User.nationalIdBackImageUrl`

Never Export

- `User.dateOfBirth` (age only if needed)
- `User.email` (without explicit consent)
- `User.phoneNumber` (without explicit consent)
- Any payment credentials

API Considerations

Pagination

All list endpoints should support:

- `limit` : Number of records (default 20, max 100)

- `offset` : Starting position
- `cursor` : Cursor-based pagination for large datasets

Filtering

Standard filter parameters:

- `status` : Filter by status enum
- `startDate` , `endDate` : Date range filters
- `category` : Filter by category
- `search` : Full-text search

Sorting

- `sortBy` : Field name
- `sortOrder` : `asc` or `desc`

Response Format

```
{
  "data": [...],
  "meta": {
    "total": 100,
    "limit": 20,
    "offset": 0,
    "hasMore": true
  }
}
```

Changelog

Version	Date	Changes
1.0	2026-02-20	Initial specification
1.1	2026-02-20	Added TicketSaleEvent, NotificationAnalyticsEvent entities; Added InterestCategory, OrganizerEventType, OnboardingStep, NotificationAction, EventReportExportFormat, AttendeeExportFilter enums; Updated entity relationships

End of Specification