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UDBS Semestral project I Journey master 2.0.1 - SRS

1 Introduction

1.1 Purpose of this document

This document specifies *S*oftware *R*requirements *S*pecification of the mobile port of the old code-base, with file-based backend. Since the community grew up and the demand for faster, more streamlined experience has risen. After online discussion the development team deviced, that to allow mobile access and to connect user-scenarios created on the forum, the *DB* backend was proposed and agreed upon.

1.2 Scope

The large part of the game engine itself is already ported to web environment using Web 2.0 stack*(NodeJS, CSS3, AngularJS, WebSockets)*. As such all of the components of the game engine are discribed in separate document called JM Game engine SRS.

This document focuses on the data analysis and reqirements. It specifies the implementation details such as HW & SW requrements as well as specifies the datatypes and structures of stored data.

1.3 Definitions, acronyms and abbreviations

Definition	Description
JM	Journey master
JME	Journey master engine
SRS	Software Requirement Specification
DB	Database
D&D	Dungeons & Dragons
v*	version *

1.4 References

1.5 Overview

2 Vision & purpose

2.1 WHAT

The Journey master is the new port of game with established ABI, which the project is trying to put on the web for mobile access. It has additional ability to connect players via forum and such, which was not possible with previous project.

2.2 HOW

The current iteration of JME (Journey master engine) uses files as storage for the quest file. Community expanded it with it's own versions and enhancements and those the current system is sluggish and cannot be used anymore. Moreover because of initial preposition of only several quest, no mind was paid to performance impact of opening multiple files and searching inside them.

2.3 WHO will use the system

Journey master is played by enthusiasts of *D&D* rules *v*5+. Who use it regularly to battle quick or longer quest or to challenge they follow journeyman. Normal session is played weekly with Guild consisting of minimally 2 players (called party) and of maximum (currently) 10 players.

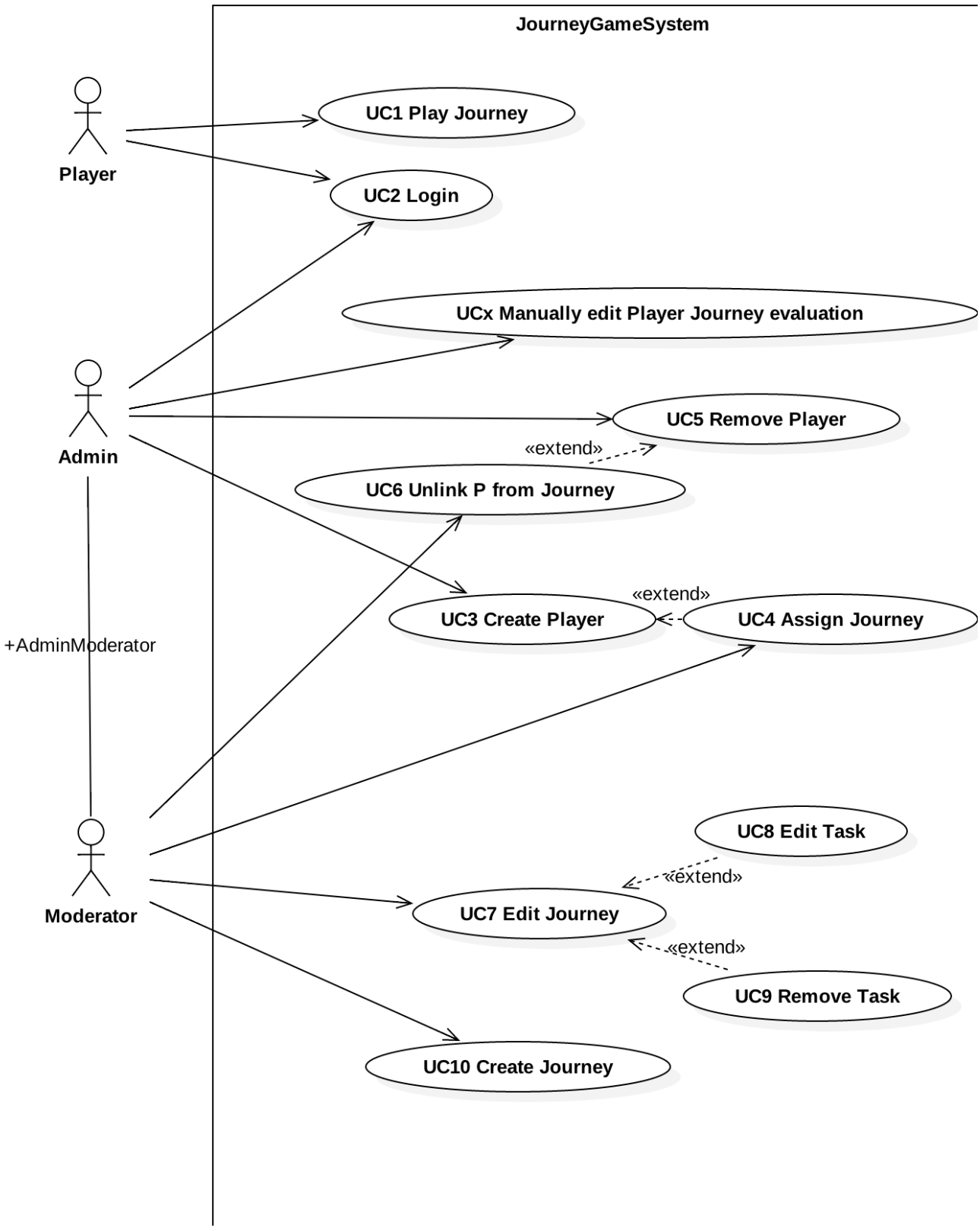
The guild abstraction and award system is already implemented and as such is not part of the specification of the Journey master port.

2.4 WHEN will the system be used

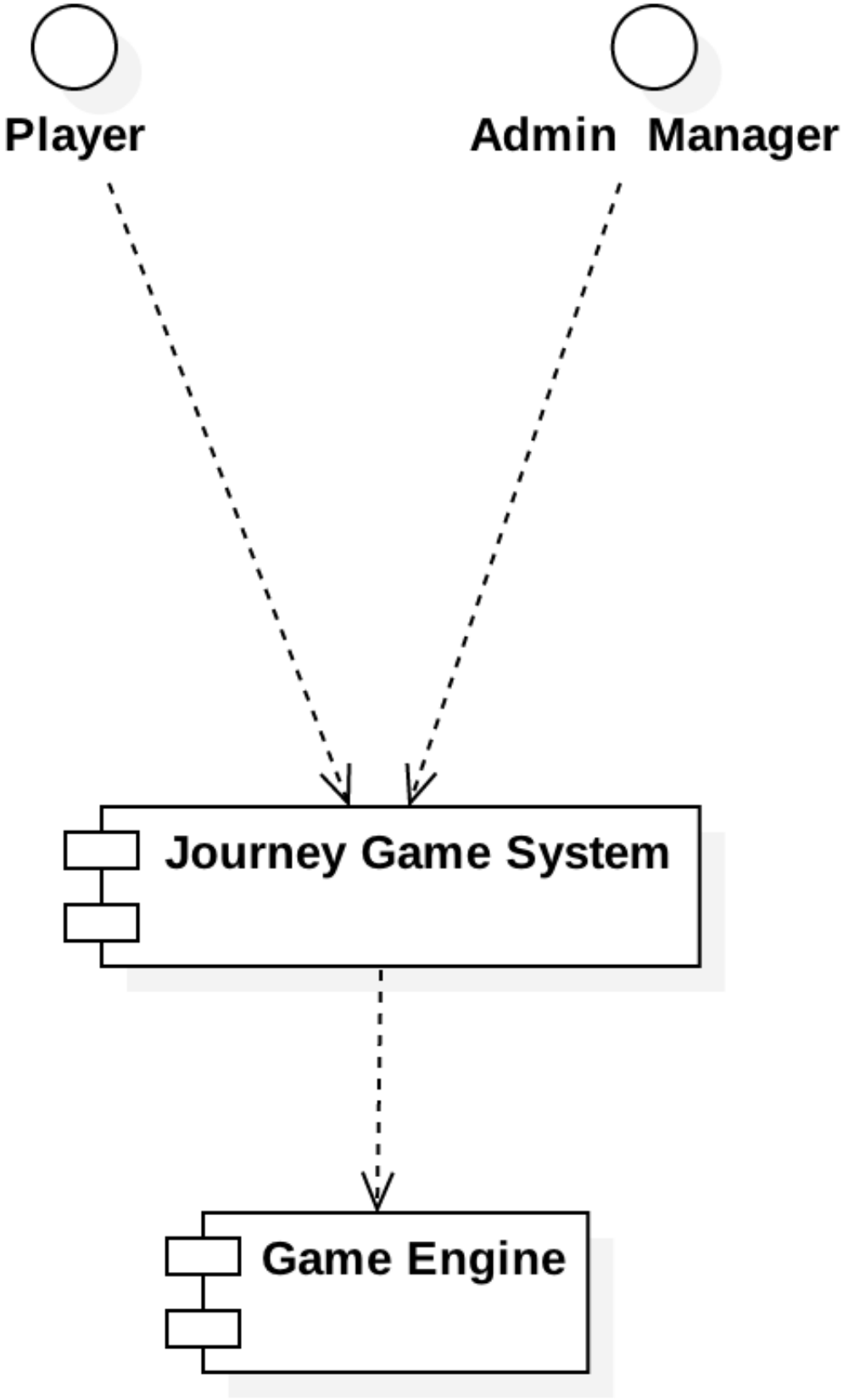
The JM is used weekly by community, which shedules the meeting via current forum. The new and improved session provides faster way to shedule and play the games thouse the interaction with the server are expeceted to increase.

3 Events & reactions

3.1 Use cases



3.2 Context Diagram



3.3 E&R

Actor	Event	Reaction
Player	Asks for new adventure	Display list of JourneyTasks
Player	Completes Journey task	Save the progress to DB
Player	Asks for journeys hist	Display list of journeys with progress
Admin	Create journey	Create new jour. with multiple types of tasks and items
Moder.	Assign player to journey	Creates connections between entities (P-J)
Sys.	Create player	Create new player account with random password

Sys. = System ~> Players are normally created via OAuth API (fallback Admin).

Moder. = Moderator ~> Lover access level than Admin, higher than player.

4 Data analysis

4.1 Linear notation

Tables

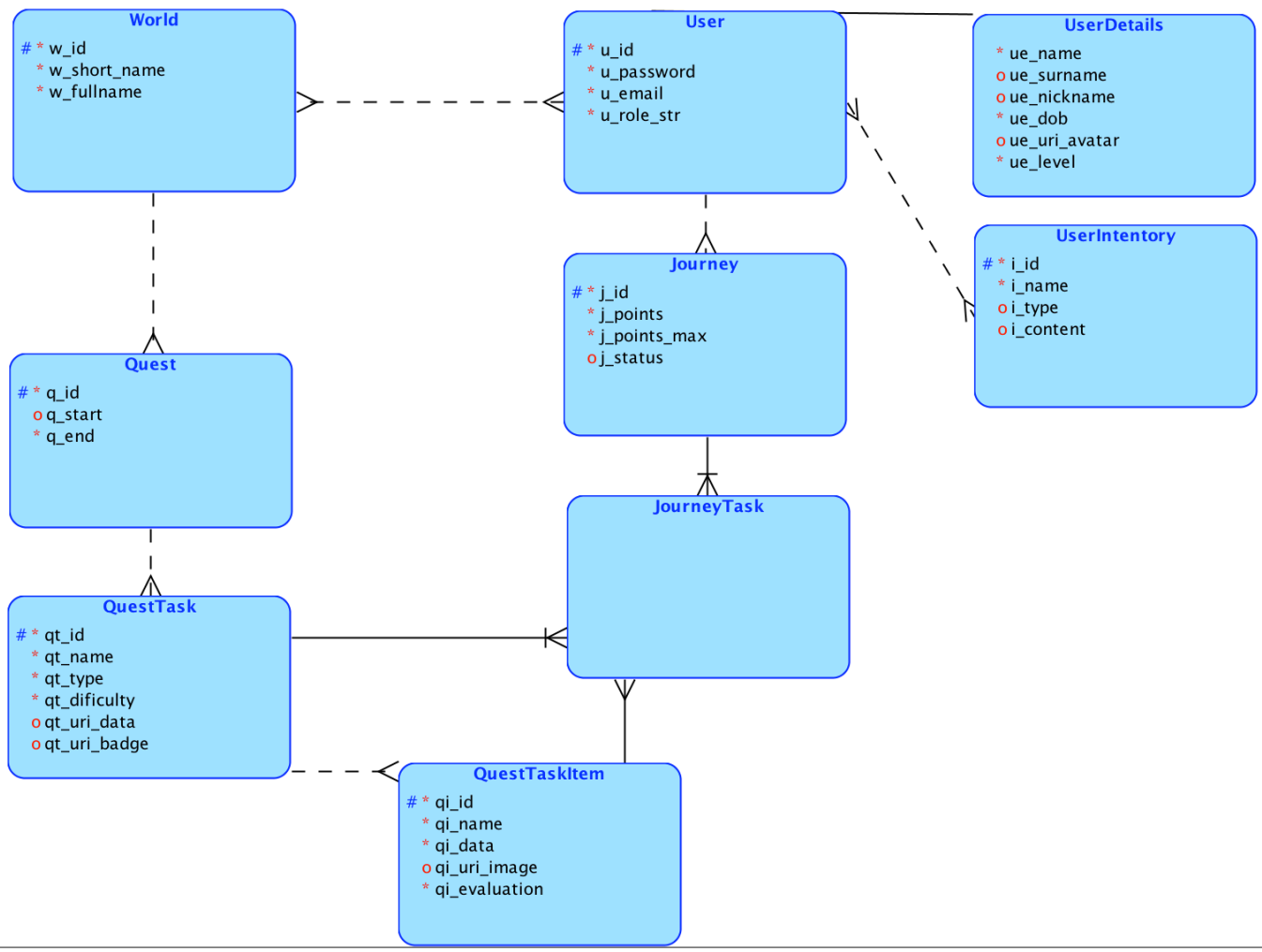
Table	Attributes
User	(**u_id**, u_email, u_password, u_role_str)
UserDetails	(ue_name, ue_surname, ue_nickname, ue_dob, ue_uri_avatar, ue_level)
UserInventory	(**i_id**, i_name, i_type, i_content)
Journey	(**j_id**, j_points, j_points_max, j_status)
Quest	(**q_id**, q_start, q_end)
QuestTask	(**qt_id**, qt_name, qt_type, qt_dificulty, qt_uri_data, qt_uri_badge)
QuestTaskItem	(**qi_id**, qi_name, qi_data, qi_uri_image, qi_eveluation)
World	(**w_id**, w_short_name, w_fullname)

Relations

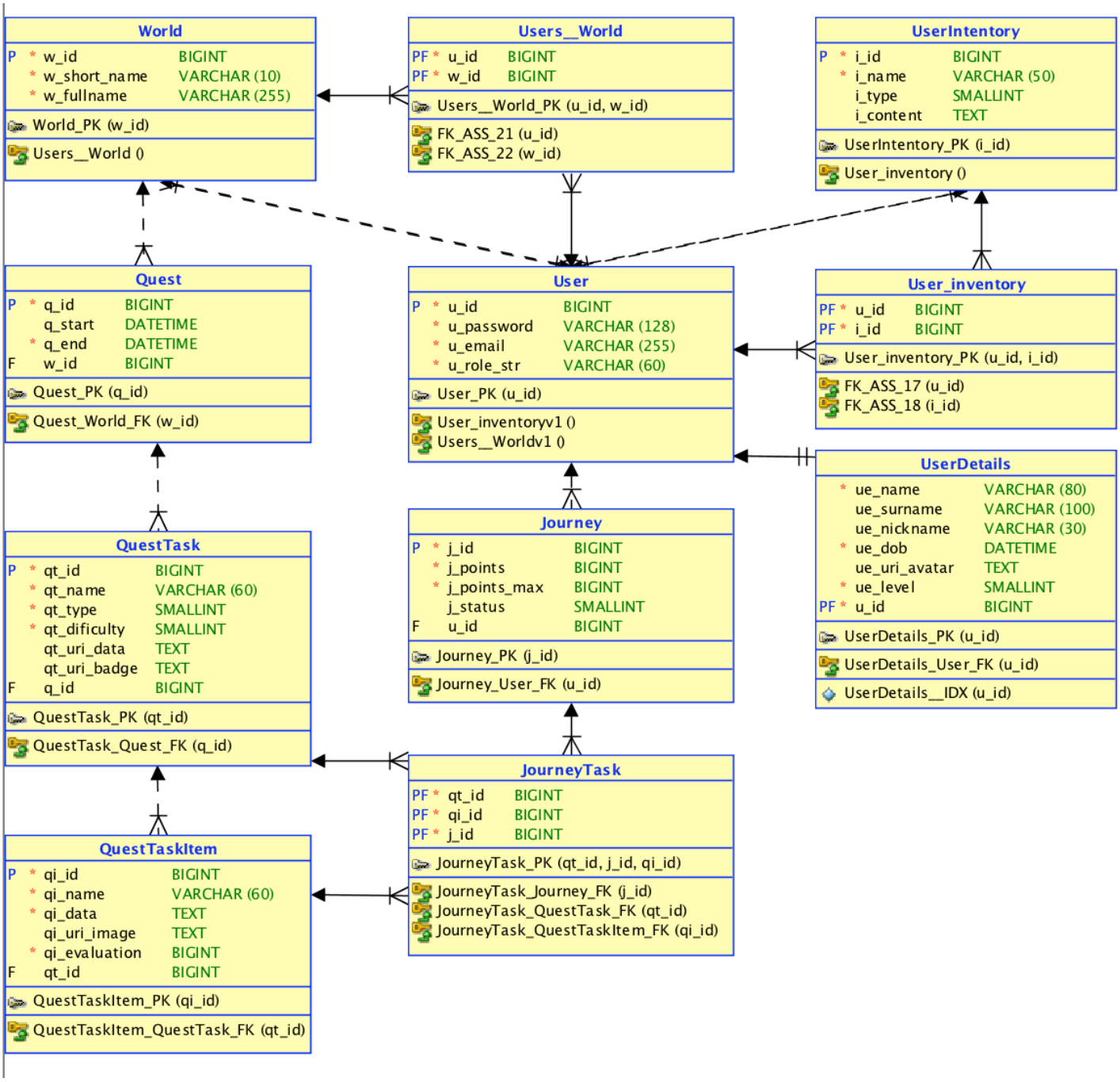
Details	of	User	(User: (1,1), UserDetails(1,1))
User	M:N	UserInventory	(User: (0,M), UserInventory(0:N))
User	M:N	World	(User: (0,M), World(0,N))
World	has	Quests	(World: (1,1), Quest(0,N))
Quest	has	QuestTasks	(Quest: (1,1), QuestTask(0,N))
QuestTask	has	QuestTaskItems	(QuestTask: (1,1), QuestTaskItems(0,N))
Journeys	of	User (player)	(User: (1,1), Journey(0,N))
JourneysTasks	rep.*	*assoc. table*	(Journey(1,1), QuestTask(0,N), QuestTaskItem(0,N))

* represented by

4.2 Conceptual model



4.3 Relational model



4.4 Data model(s)

User

attibute	type	size
u_id	int	4B
u_email	varchar(255)	512B
u_role_str	varchar(60)	122B
u_password	varchar(128)	158B

UserDetails

attribute	type	size
u_id	int	4B
ue_name	varchar(80)	162B
ue_surname	varchar(100)	202B
ue_nickname	varchar(30)	62B
ue_dob	DateTime	8B
ue_level	smallint	1B
ue_uri_avatar	text	~300B
		~1535B

Quest

attribute	type	size
q_id	int	4B
q_start	DateTime	8B
q_end	DateTime	8B

QuestTask

attribute	type	size
qt_id	int	4B
qt_name	varchar(60)	122B
qt_type	smalllint	1B
qt_dificulty	smallint	1B
qt_uri_data	text	~300B
qt_uri_badge	text	~300B
q_id	int	4B

QuestTaskItem

attribute	type	size
qi_id	int	4B
qi_name	varchar(60)	122B
qi_data	text	~300B
qi_uri_image	text	~300B
qi_evaluation	int	4B
qt_id	int	4B

JourneyTask

attribute	type	size
qt_id	int	4B
qi_id	int	4B
j_id	int	4B

Journey

attribute	type	size
j_id	int	4B
j_points	double	16B
j_points_ma	double	16B
j_status	smallint	1B
u_id	int	4B

4.5 Constraints

This project has several constrainst namely the forbidden NULL values as seen in the relational and conceptual model.

Further more the QuestTask.qt_type can only have following values: 1 (-explore), 2 (-do), 3 (-steal), 4 (-sneak), 5 (-hide)

Journey.j_status can only have values: 1,2,3,4,5,6

5 Functional analysis

5.1 Functional dependencies

w_id	->	w_short_name, w_fullname
u_id	->	u_email, u_password, u_role_str, ue_name, ue_surname, ue_level
u_email	->	u_password, u_role_str, ue_name, ue_surname, ue_level
j_id	->	j_points, j_points_max
q_id	->	q_start, q_stop
qt_id	->	qt_name, qt_type, qt_dificulty
qi_id	->	qi_name,qi_data,qi_evaluation,qi_uri_image
i_id	->	i_name

5.2 Relations after decomposition and minimalizations

R1	(**w_id**, w_short_name, w_fullname)
R2	(**u_id**, u_email, u_password, u_role_str, ue_name, ue_surname, ue_level, ue_nickname)
R3	(**j_id**, j_points)
R4	(**q_id**, q_start, q_end)
R5	(**qt_id**, qt_name, qt_type, qt_dificulty, qt_uri*data, qt_uri*image)
R6	(**qi_id**, qi_name, qi_data, qi_evaluation, qi_uri_image)
R7	(**i_id**, i_type, i_name)

5.3 Normal forms

BCNF

Model satisfies the BCNF normal form.

3NF

Satisfies the less strict form 3NF since it satisfies 1NF and 2NF and on the left side all functional dependencies are either keys or candidate for a key.

5.4 BCNF adjustments

for the normal forms the relationship 1:1 between the User and UserDetails is redundant and should be removed by merginig thouse two tables together.