SWED-Übungsblatt 10 Lösungen G.Emre Tatar

1. Develop a project planning for a Tetris Gaming App for AR glasses. Draw a Gantt chart with project activities and dependencies. Plan timings and milestones.

Main Phases and Dependencies

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1. Project Initiation and Planning

- Kick-off Meeting
- Team Formation
- Requirements Gathering (Technical, AR Glasses Features, User Scenarios)
- Feasibility Study (AR Compatibility, Technical Challenges)

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2. Design Phase

- UI/UX Design (Optimized for AR Interface)
- Game Mechanics Design (Classic Tetris + AR Interaction Scenarios)
- AR Interaction Flow Planning (Gesture Controls, Head Movement, etc.)
- Prototype Preparation (Low-fidelity visual prototype)

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3. Development Phase

Environment Setup

- Development Environment Preparation
- AR SDK and Tools Setup (e.g., Unity + AR SDK)

Core Game Development

- Block Mechanics Implementation
- Scoring System
- Game Start/End Logic

AR Integration

- AR Display Layer Development
- AR Interaction Features (Gesture, Head Movement, Voice Commands)

Sound and Graphics

- Graphic Design (Minimal, AR-friendly visual style)
- Sound Effects and Music Integration

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4. Testing Phase

- Unit Testing
- Integration Testing
- AR Functionality Testing (Various lighting conditions, depth perception)
- User Acceptance Testing (Pilot group testing)

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5. Deployment and Launch

- Beta Release
- User Feedback Collection
- Final Adjustments and Improvements
- Official Launch

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6. Post-Launch Support

- Live Monitoring (User behavior, error reports)
- Bug Fixing and Updates
- New Feature Planning

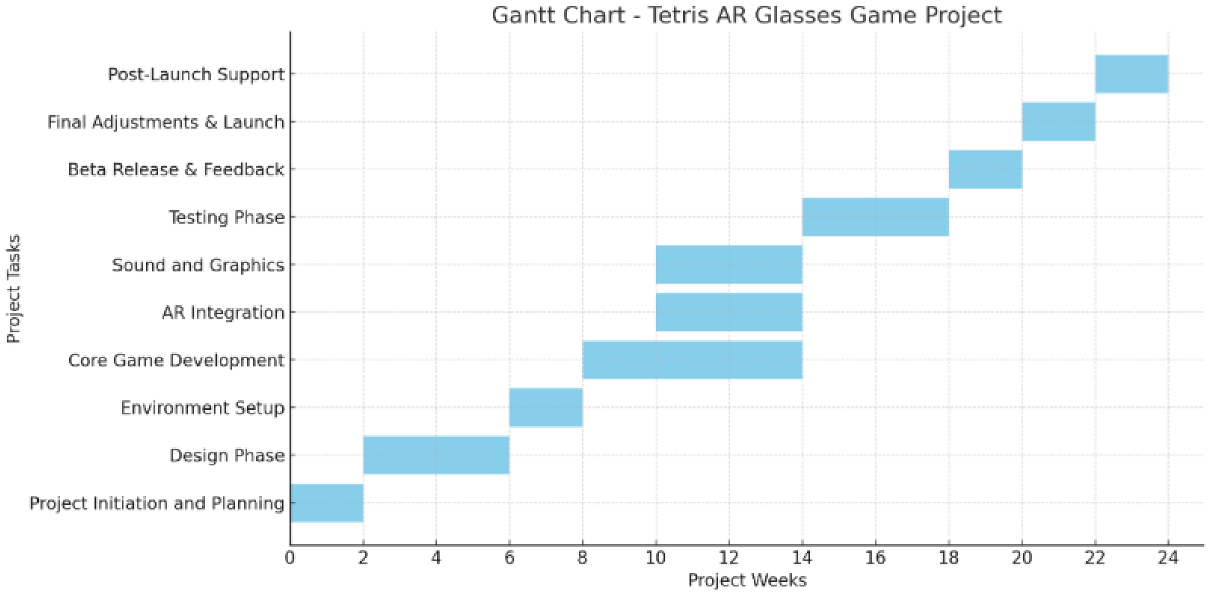
Activity	Duration	Start Week	Dependency
Project Initiation and Planning	2 Weeks	Week 1	-
Design Phase	4 Weeks	Week 3	After Planning
Environment Setup	2 Weeks	Week 7	Can run parallel to Design
Core Game Development	6 Weeks	Week 9	After Environment Setup
AR Integration	4 Weeks	Week 11	Parallel to Game Dev
Sound and Graphics	4 Weeks	Week 11	Can run parallel
Testing Phase	4 Weeks	Week 15	After Development
Beta Release & Feedback Collection	2 Weeks	Week 19	After Testing

Activity	Duration	Start Week	Dependency
Final Adjustments & Launch	2 Weeks	Week 21	After Beta
Post-Launch Support	Ongoing	Week 23	After Launch

Key Milestones

Week 2 - Completion of Requirements Gathering and Feasibility Study
Week 7 - Design Finalized, Development Environment Ready
Week 15 - Development Completed, Testing Begins
Week 19 - Beta Version Released

Week 23 - Final Version Launched



2.

Cost Item	Duration/Quantity	Unit Price	Total (USD)
Project Manager	6 months	7,000 USD/month	42,000 USD
Software Developers (2 people)	6 months	6,000 USD/month	72,000 USD
AR Specialist	4 months	7,500 USD/month	30,000 USD
UI/UX Designer	2 months	5,000 USD/month	10,000 USD
Graphics & Sound Design	Lump sum (1 month)	5,000 USD	5,000 USD
Testing & QA	1.5 months	4,000 USD/month	6,000 USD
Licenses & Software Tools (Unity, AR SDK, etc.)	Lump sum	8,000 USD	8,000 USD

Cost Item	Duration/Quantity	Unit Price	Total (USD)
Hardware & AR Glasses for Testing	Lump sum	12,000 USD	12,000 USD
Contingency (~10% of total)	-	-	18,500 USD

Selling Price and Rationale

There are two possible pricing strategies:

✓ **One-time license sale**
✓ **Per-user licensing model**

we sell the game as a **one-time license** to AR glasses manufacturers or platform providers.

Target Profit Margin: At least 50%
Development Cost: 203,500 USD
Suggested Selling Price: Minimum **300,000 - 350,000 USD**

Why this price?

- AR market is niche, with limited direct competition
- Few optimized games exist for AR glasses
- Technically validated, interactive product ready for deployment
- Potential for additional paid updates or support packages
- Licensing buyer can monetize or market the product further

If sold as a **consumer app** on platforms like App Stores or AR marketplaces:

- **Price per download:** 5 - 10 USD
- With a target of 50,000+ downloads, the project becomes profitable

3. How would you staff the project to achieve the minimal time to market?

Key Strategies

Parallel workstreams for design, development, and AR integration
Assign experts to critical technical areas
Strong communication and coordination
Use of external resources or libraries to save time

- With **3 developers**, core mechanics and AR integration can progress simultaneously
- The **AR specialist** minimizes risk by addressing AR-specific technical issues early

- The **UI/UX designer** ensures smooth user interaction, especially for AR environments
- The **QA engineer** performs ongoing testing to prevent bottlenecks and delays
- Involving the graphics/sound designer early reduces waiting periods during development

With this structure, the project timeline can realistically be reduced from 6 months to approximately **4 - 4.5 months**.

4. Software Development Process

The **Agile** development process would be ideal for this project because:

- **Flexibility:** Agile allows for iterative development and continuous feedback, which is crucial for innovative projects like AR apps.
- **Customer Involvement:** Regular feedback from potential users can be incorporated quickly.
- **Risk Management:** Frequent releases and testing help identify and mitigate risks early.

5. Options to Finish the Project Over Time and Budget

- **Scope Reduction:** Focus on core functionalities and defer additional features to future updates.
- **Additional Resources:** Hire more developers or testers to speed up the remaining tasks.
- **Overtime:** Encourage the team to work overtime with proper compensation.
- **Outsourcing:** Outsource some of the tasks to third-party vendors to reduce workload.