Developer: Tiffany Morgan
Project Name: Launch Commander
Course: INEW 2334
Date: January 28, 2026
Project Type: Full-stack MEAN Application

Launch Commander – 40-Question Client Discovery Survey

Actual Client: Tiffany Morgan-Hill
Hypothetical Client: Firefly Aerospace
Project: Interactive Rocket Launch Prediction Tool
Date: January 29, 2026

Section 1: Company Goals & Vision

1. What primary goals does your organization want to achieve by using an interactive launch-prediction tool like Launch Commander?

As Firefly Aerospace, we want to democratize space engagement and build an active community around our missions. Our primary goals are to:
- Increase brand awareness among space enthusiasts and STEM students
- Create sustained engagement before, during, and after our launches
- Build a loyal community that feels invested in our success
- Differentiate ourselves from competitors through interactive digital experiences
- Generate excitement around our Alpha and Beta launch vehicles

2. How do you envision this tool supporting your broader mission of increasing public engagement with spaceflight?

Launch Commander transforms passive viewing into active participation. By allowing users to predict mission outcomes, they'll learn about critical parameters like MECO timing, orbital mechanics, and payload deployment—making them more informed and invested space enthusiasts. This aligns with Firefly's mission to make space accessible and to inspire the next generation of aerospace professionals.

3. What specific metrics or outcomes would you consider a success for this project?

Success metrics include:
- 1,000+ registered predictions within first 3 months
- 40%+ user return rate for subsequent launches
- Average session duration of 5+ minutes
- 60%+ user accuracy rate (indicates learning is occurring)

- Increased social media mentions during Firefly launch events
- 25%+ of users engaging with educational content

4. How important is educational outreach in your digital engagement strategy?

Extremely important. Firefly's mission includes STEM education and workforce development. We want users to understand the complexity and engineering excellence behind each launch—not just whether the rocket takes off. The prediction system should teach users about mission-critical phases and parameters.

5. Does your organization want this tool to reflect its long-term brand identity or support a specific campaign or initiative?

Long-term brand identity. While we'll promote specific missions, we want this platform to become synonymous with Firefly's innovative approach to public engagement. It should grow with us as we expand our launch manifest and potentially support our lunar lander missions in the future.

Section 2: Target Audience & User Behavior

6. Who do you consider the primary audience for this tool (e.g., students, space enthusiasts, general public, investors)?

Primary: Space enthusiasts and STEM students (ages 16-35)
Secondary: General public with curiosity about spaceflight
Tertiary: Aerospace professionals seeking casual engagement

We're not targeting investors directly—this is about community building and brand affinity.

7. What age ranges or demographic groups do you want to prioritize for engagement?

- Primary: Ages 18-24 (college students, early career professionals)
- Secondary: Ages 13-17 (high school students, future workforce)
- Tertiary: Ages 25-45 (established enthusiasts, potential customers)

Accessibility is important—we want the tool to be approachable for newcomers while still engaging for experienced enthusiasts.

8. How familiar do you expect users to be with rocket launches, terminology, and aerospace concepts?

Mixed familiarity. We expect:
- 30% beginners (know what a rocket is, not much else)

- 50% intermediate (follow launches, understand basic terms)
- 20% advanced (understand orbital mechanics, propulsion systems)

The interface should include tooltips/glossary for technical terms so beginners can learn while participating.

9. What types of user behaviors do you want to encourage through this tool (e.g., repeat visits, predictions, sharing)?

- Repeat visits: Users should check back for upcoming launches and results
- Active prediction: We want thoughtful predictions, not random guessing
- Social sharing: Users should feel proud of accurate predictions and share on social media
- Learning: Users should explore educational content to make better predictions
- Community engagement: Future forums/discussions around launch events

10. How important is accessibility for neurodivergent users, students, and first-time space learners?

Very important. We want inclusive design that accommodates:
- Clear, consistent navigation for users with ADHD/autism
- High contrast modes for visual accessibility
- Simple language with technical terms explained
- Progress indicators to reduce anxiety during multi-step processes
- Keyboard navigation support
- Screen reader compatibility (ARIA labels)

Section 3: Branding & Visual Direction

11. What core brand values do you want reflected in the design of this tool?

Firefly's brand values:
- Accessibility: Space is for everyone, not just elite organizations
- Innovation: Modern, forward-thinking approach
- Transparency: Honest communication about successes and failures
- Precision: Engineering excellence and attention to detail
- Ambition: Reaching for challenging goals

The design should feel professional yet approachable—not cold/corporate.

12. Are there specific brand guidelines, color palettes, or typography requirements that must be followed?

Firefly brand guidelines:

- Primary colors: Deep blue (#003366), bright yellow/gold (#FFD700) - representing night sky and firefly glow
- Secondary colors: White (#FFFFFF), charcoal gray (#333333)
- Typography: Clean sans-serif fonts (Montserrat or similar for headings, Open Sans for body)
- Logo usage: Firefly logo should appear in header but not dominate the interface
- Accent: Subtle firefly/glow visual motifs

13. Do you prefer a realistic, mission-control aesthetic or a more playful, gamified style?

Hybrid approach: "Mission-control meets modern gaming"
- Professional data presentation (clear cards, organized layouts)
- Gamified elements (leaderboard, achievement badges, accuracy percentages)
- Serious about the technology, fun in the engagement
- Think: NASA meets Duolingo—educational but not boring

14. How prominently should your company's branding appear throughout the experience?

Subtle but present:
- Logo in header/footer (standard placement)
- Our launches highlighted with Firefly brand color accents
- "Powered by Firefly Aerospace" badge
- Avoid over-branding that detracts from user experience
- The quality of the tool IS the branding

15. Are there any visual elements, themes, or motifs that you want to avoid?

Avoid:
- Overly corporate/sterile aesthetics (we're not Boeing)
- Childish/cartoonish rocket illustrations (this isn't a kids' game)
- Cluttered interfaces with too many competing visual elements
- Dark patterns or manipulative UI (transparent, ethical design only)
- Competitor branding (SpaceX green, Blue Origin blue tones)

Section 4: Features & Functionality

16. What key features do you consider essential for the first version of this tool?

Must-have (MVP):
- Real-time display of upcoming launches (all providers, not just Firefly)
- Prediction submission for multiple parameters (success, timing, altitude, payload)
- Automated scoring after launch completion
- Global leaderboard showing top predictors
- Mobile-responsive design

Nice-to-have (Phase 2):
- User profiles with prediction history
- Educational content/glossary
- Social sharing capabilities
- Email notifications for launch events

17. How important is real-time launch data accuracy for your intended use?

Critical. Inaccurate data would damage our credibility and user trust. We need:
- Reliable data source (Launch Library 2 API is acceptable)
- Automatic updates as launch schedules change
- Clear indicators when data is delayed/uncertain
- Graceful handling of launch scrubs and postponements Note, could market it as an Extra chance for those who didnt get a launch guess in...
- Accurate post-launch data for scoring predictions

18. Would you like to include a user leaderboard, achievements, or gamification elements?

Yes, but balanced:
- Global leaderboard (top 50 users)
- Accuracy percentage visible on profiles
- Badges for milestones (10 predictions, 5 accurate predictions, etc.)
- Avoid overly competitive elements that create negative community dynamics
- Emphasize learning and improvement over pure competition

19. Do you want users to receive notifications or alerts for upcoming launches?

Phase 2 priority. For MVP, not essential, but for long-term engagement:
- Email alerts 24 hours before Firefly launches
- Optional: Alerts for any favorited launches
- SMS/push notifications (later phase, requires user opt-in)
- Weekly digest of upcoming launches
- Results notifications for predictions made

20. Should the tool highlight your organization's launches more prominently than launches from other providers?

Yes, but tastefully:
- Firefly launches get a colored border/badge (brand colors)
- "Featured Launch" section for upcoming Firefly missions
- Include all providers fairly—we want to be seen as industry leaders, not biased
- Users should be able to filter by provider if desired
- Highlighting should feel like helpful curation, not manipulation

Section 5: Technical Requirements

21. Do you have preferences regarding the technology stack used for the front-end and back-end?

No strong preferences. We trust the developer's judgment. Current MEAN stack (MongoDB, Express, Angular, Node.js) is acceptable because:
- Well-documented and widely supported
- Good performance for this use case
- Sufficient for our needs

Priority is reliability and maintainability over specific technologies.

22. Are there specific security standards or compliance requirements you expect for this project?

Standard web security best practices:
- HTTPS/SSL certificates (required)
- Basic input validation to prevent injection attacks
- CORS properly configured
- No sensitive user data collected initially (so GDPR/CCPA concerns minimal)
- If user accounts added later: password hashing, secure session management
- Regular dependency updates for security patches

No aerospace-specific compliance needed (this isn't handling ITAR-restricted data).

23. Do you require user authentication, or should the tool remain open and anonymous?

User authentication required for MVP:
- Users must create an account to submit predictions
- Simple registration: email/username and password
- JWT token-based session management
- Optional Google OAuth for easier onboarding
- Passwords hashed with bcrypt for security
- Anonymous users can view launches and leaderboard (read-only)
- Authentication ensures prediction accountability and prevents duplicate submissions

24. How important is scalability for handling large spikes in traffic during major launch events?

Moderately important:
- Expect 500-2,000 concurrent users during major Firefly launches
- Should handle traffic gracefully (slow down, not crash)
- Free-tier cloud hosting acceptable for MVP
- Database should scale if tool gains traction

- Static frontend can be CDN-cached for performance

This is a public engagement tool, not mission-critical infrastructure.

25. Do you want the tool hosted on a specific platform or cloud provider?

No preference, but prefer:
- Platforms with free/student tiers (Vercel, Render, Railway, MongoDB Atlas)
- Easy deployment from Git (CI/CD)
- Minimal maintenance overhead
- Reliable uptime (99%+)

Avoid vendor lock-in if possible—code should be portable.

Section 6: API, Data, and Integrations

26. Do you approve the use of the Launch Library 2 API for real-time launch data?

Yes, approved. Launch Library 2 is a reputable, community-maintained source that includes Firefly's launches. It's free, well-documented, and widely used. Acceptable limitations:
- Occasional data delays (we understand it's third-party)
- Rate limits (implement caching to stay within limits)
- Attribution to The Space Devs in footer/credits

If Firefly ever provides our own public API, we may supplement data, but LL2 is fine for now.

27. Would you like to integrate any internal APIs or proprietary data sources?

Not initially. Firefly doesn't have a public-facing launch data API currently. In the future:
- Potential for enhanced Firefly mission data (countdown timers, telemetry)
- Behind-the-scenes content (photos, videos, mission updates)
- But for MVP, public data is sufficient

28. Do you want analytics tracking integrated to measure user engagement and behavior?

Yes, essential for understanding ROI:
- Google Analytics 4 (standard web analytics)
- Track: page views, session duration, prediction submissions, return visits
- Heat maps/click tracking (optional, later phase)
- Privacy-respecting implementation (GDPR compliance)
- Monthly reports to assess engagement metrics

Data will inform future feature development and marketing strategy.

29. Are there any restrictions on how your launch data can be displayed or used?

No restrictions beyond standard accuracy:
- Display Firefly launches accurately (correct vehicle name, mission details)
- Don't misrepresent launch outcomes or create false associations
- Use official Firefly imagery/branding appropriately
- Avoid suggesting unofficial affiliations with NASA, ESA, etc.
- Credit data sources appropriately

30. Do you want the tool to integrate with social media platforms for sharing predictions or launch events?

Yes, strongly desired:
- "Share my prediction" buttons (Twitter/X, Facebook, LinkedIn)
- Pre-populated share text: "I predict [launch] will [outcome]! Make your prediction at LaunchCommander.app"
- Social preview cards with Open Graph meta tags
- Consider: Automated posts when users achieve milestones
- Hashtag strategy: #FireflyAerospace #LaunchCommander #SpacePrediction

Section 7: Content, Messaging & Tone

31. What tone of voice should the tool use when communicating with users (e.g., educational, mission-control, playful)?

Tone: "Enthusiastically professional"
- Educational but not condescending
- Excited about space without being juvenile
- Technical accuracy with approachable language
- Encouraging learning and participation

Example copy:
- "Make your prediction for this Firefly Alpha mission!"
- "You predicted MECO within 5 seconds—excellent precision!"
- "ATTENTION: SUBMIT PREDICTION NOW!" (too aggressive)
- "Oopsie! Your rocket prediction was wrong!" (too childish)

32. Do you want to include educational content about rocket technology, missions, or launch sites?

Yes, integrated naturally:
- Tooltips on technical terms (MECO, LEO, GTO, payload fairing)
- "Learn More" expandable sections on launch cards
- Glossary page for common aerospace terminology

- Brief mission descriptions (what the payload does)
- Launch site information (Vandenberg, Cape Canaveral, etc.)
- Link to Firefly's website for deeper dives

Education should enhance, not overwhelm, the core prediction experience.

33. Should the tool include safety disclaimers or official messaging regarding launch schedules?

Yes, important legal/safety disclaimers:
- "Launch schedules are subject to change due to weather, technical issues, or other factors."
- "Never attempt to visit launch sites without proper authorization."
- "This tool is for entertainment and educational purposes—predictions do not affect actual missions."
- "Data sourced from Launch Library 2 API—accuracy not guaranteed."
- Footer: "Not officially affiliated with NASA, SpaceX, or other launch providers shown."

Disclaimers should be visible but not intrusive (footer, about page).

34. Do you want to highlight behind-the-scenes content, mission updates, or engineering insights?

Phase 2 feature, highly desired:
- Mission spotlight articles (2-3 per year for major Firefly launches)
- Engineer interviews or "How It Works" videos
- Photo galleries from launch preparations
- Technical deep-dives (propulsion systems, mission profiles)
- Integration with Firefly's blog/press releases

For MVP, focus on core functionality; content can be added incrementally.

35. Are there specific calls-to-action you want users to see (e.g., "Learn more," "Join our newsletter," "Explore careers")?

Yes, strategic CTAs:
- Primary: "Make a Prediction" (main user action)
- Secondary: "View Leaderboard" (engagement)
- Tertiary: "Learn More About Firefly" (brand awareness) → links to firefly.com
- Future: "Join our Newsletter" (email capture for marketing)
- Future: "Explore Careers" (recruitment funnel)

Avoid overwhelming users—1-2 CTAs per page maximum.

Section 8: Project Scope, Timeline & Budget

36. What is your ideal timeline for the first functional release of this tool?

Target: 8-12 weeks from project start
- Weeks 1-2: Requirements finalization, design mockups
- Weeks 3-6: Core development (frontend, backend, database)
- Weeks 7-8: Testing, bug fixes, API integration refinement
- Weeks 9-10: Beta testing with internal team
- Weeks 11-12: Deployment, final QA, launch

We understand this is a student project with academic deadlines, so we're flexible. A polished MVP is better than a rushed full-featured version.

37. Do you anticipate future phases or expansions beyond the initial launch?

Yes, roadmap includes:
- Phase 2 (3-6 months post-launch): User authentication, email notifications, expanded educational content
- Phase 3 (6-12 months): Mobile app (iOS/Android), advanced analytics, user profiles with badges
- Phase 4 (12+ months): Community forums, live launch streams integration, Firefly-exclusive features

MVP should be architected to support these expansions (modular code, scalable database).

38. What level of ongoing maintenance or support do you expect after deployment?

Realistic expectations:
- Critical issues: 24-48 hour response time
- Bug fixes: Weekly or bi-weekly updates as needed
- Feature updates: Quarterly releases for Phase 2+ features
- API monitoring: Automated alerts if Launch Library 2 data stops updating
- Security patches: As needed when vulnerabilities discovered

Understanding this is a portfolio/academic project—Firefly may eventually transition to internal team or contracted developer for long-term support.

39. Do you have a defined budget range for development, hosting, and long-term upkeep?

Student project context acknowledged:
- Development: Academic project (no direct payment to student developer)
- Hosting (Year 1): $0-$100/year (student/free tiers: Vercel, Railway, MongoDB Atlas)
- Domain: $10-15/year
- Future hosting (if traffic grows): $50-200/month (production-ready infrastructure)
- Analytics/Tools: Free tiers (Google Analytics, Sentry error tracking)

Total MVP annual cost: $10-100 (mostly domain + potential minimal hosting)

Student-Friendly Hosting Recommendations:
- Frontend: Vercel (free tier, no credit card required)
- Backend: Render.com free tier OR Railway ($5/month with GitHub Student Developer Pack)
- Database: MongoDB Atlas free tier (512MB, sufficient for MVP)
- Domain: Namecheap with education discount OR use free subdomain (launchcommander.vercel.app)

For a student, $0-5/month is achievable while maintaining professional quality.

40. How frequently do you want progress updates, milestone reviews, or check-ins during development?

Bi-weekly check-ins preferred:
- Sprint demos every 2 weeks (15-30 minutes)
- Written status updates via email/Slack weekly
- Major milestone reviews (design approval, beta launch, final deployment)
- Access to development environment for ongoing visibility
- Asynchronous feedback via GitHub issues/comments welcome

We understand academic schedules—flexible on meeting times but want regular communication to ensure alignment.