AI Career Guidance Tool: POC Definition & Development Plan

Executive Summary

This document provides a comprehensive definition and development plan for the Proof of Concept (POC) of an AI-powered career guidance tool targeted at young adults. The POC will demonstrate the core functionality and user experience of the product, focusing on helping users explore career paths through an engaging, mobile-friendly interface.

The plan is based on the product backlog, user personas, and technical requirements provided in the planning documents, as well as specific clarifications from the stakeholder. The POC will focus on delivering a working journey for several key employment categories with a minimalistic design inspired by social media apps and games to engage a young adult audience.

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POC Scope and Objectives

Target Audience

Based on the identified personas from the planning documents:

1. **Lost Luke**: Users who lack motivation and agency, are challenging to engage but represent high social impact if successful.
2. **Sparky Sarah**: Users with ambition who face external pressure/discouragement and need validation to explore options.
3. **Entrepreneur Ernie**: Users ready for trial and learning, prepared for failure, and needing realistic guidance.

POC Objectives

1. Demonstrate the core value proposition of AI-guided career exploration
2. Validate the user experience and engagement model for the target audience
3. Test integration with content sources (YouTube, Instagram)
4. Gather feedback for future development iterations
5. Provide a foundation for the full product development

Core Features for POC

1. Initial Assessment ("Get to Know You")

- User registration and profile creation
- Conversational AI interface using OpenAI
- Basic skills and interests evaluation
- Storage of user preferences and responses

2. Visual Journey for Key Employment Categories

- Interactive path visualization for several key employment categories
- Gamified progression system
- Mobile-optimized interface inspired by social media and gaming apps
- Visual representation of career exploration progress

3. Content Integration

- Curated YouTube and Instagram content delivery

- Content-specific questioning and reflection
- Basic recommendation engine based on user preferences
- Focus on quality over quantity of content

4. Output Generation

- Shareable profile/summary page
- Basic career path justification
- Simple skills gap analysis
- Next steps recommendations

Technical Scope

In Scope

- Mobile-responsive web application
- OpenAI integration for conversational AI
- YouTube and Instagram content embedding
- User authentication and profile management
- Cloud deployment for testing
- Basic analytics for user engagement tracking

Out of Scope for POC

- Native mobile applications
- Advanced personalization algorithms
- Integration with educational institutions
- Parent/guardian dashboard
- Advanced content management system
- Comprehensive reporting and analytics

Success Criteria

1. Successful completion of end-to-end user journey for at least 3 key employment categories
2. Positive engagement metrics from test users
3. Functional integration with YouTube and Instagram content
4. Responsive design working across mobile and desktop devices
5. Stable cloud deployment with acceptable performance

Timeline

- Target completion: October 2025

- Development approach: 2-week sprint cycles with regular stakeholder reviews

Constraints and Assumptions

- POC will be built by the stakeholder
- Cloud deployment for testing
- OpenAI will be used for AI capabilities
- Design will follow best practices for young adult audience engagement
- Content moderation will be manually handled during the POC phase

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Development Plan

UI/UX Specifications

Design Philosophy

The POC will follow a minimalistic, engaging design inspired by social media apps and games that appeal to young adults. The interface will prioritize:

- **Mobile-first approach**: Ensuring optimal experience on smartphones and tablets
- **Intuitive navigation**: Simple, gesture-based interactions familiar to the target audience
- **Visual engagement**: Game-like elements to maintain interest and motivation
- **Progressive disclosure**: Information presented in digestible chunks to avoid overwhelming users
- **Accessibility**: Ensuring the application is usable by individuals with diverse needs

User Interface Components

1. Onboarding & Assessment

- **Welcome Screen**: Simple, visually appealing introduction with clear call-to-action
- **Registration**: Streamlined sign-up process with minimal required fields
- **Conversational Interface**: Chat-like UI for AI interaction with typing indicators and response bubbles
- **Interest Selection**: Visual card-based interface for selecting interests and skills
- **Progress Indicator**: Gamified progress bar showing completion of initial assessment

2. Visual Journey

- **Career Path Visualization**: Interactive, node-based visualization showing potential career paths
- **Category Cards**: Swipeable cards for different employment categories with visual identifiers
- **Achievement Badges**: Unlockable elements to reward exploration and engagement
- **Progress Timeline**: Visual representation of user's journey and discoveries
- **Quick Navigation**: Floating action button for easy access to key features

3. Content Exploration

- **Content Feed**: Instagram-inspired scrollable feed of curated career content
- **Video Player**: Embedded YouTube player with custom controls and related content suggestions
- **Reflection Prompts**: Contextual questions appearing after content consumption
- **Save/Bookmark**: Ability to save interesting content for later review
- **Share Functionality**: Options to share discoveries with trusted contacts

4. Output & Summary

- **Profile Dashboard**: Visual summary of interests, skills, and explored paths
- **Career Path Cards**: Detailed view of potential career paths with justification
- **Skills Gap Visualization**: Simple chart showing current skills vs. required skills
- **Action Plan**: Visually structured next steps with timeframes and resources
- **Share Profile**: Ability to generate shareable summary of career exploration

User Experience Flow

1. **Entry Point**: User arrives at welcome screen and creates account
2. **Initial Assessment**: Conversational AI guides user through interest and skill discovery
3. **Path Presentation**: System presents initial career path options based on assessment
4. **Exploration**: User explores content related to career paths of interest
5. **Reflection**: AI prompts user to reflect on content and refine preferences
6. **Path Refinement**: System updates suggested paths based on user feedback
7. **Summary Generation**: User receives personalized career path recommendations and action plan
8. **Continued Engagement**: User can revisit and explore additional paths or dive deeper into selected paths

Design System

- **Color Palette**: Vibrant, youth-oriented colors with high contrast for readability
- Primary: #3A86FF (bright blue)
- Secondary: #FF006E (vibrant pink)
- Accent: #FFBE0B (warm yellow)

- Neutrals: #8D99AE (soft gray), #2B2D42 (dark blue-gray)

- **Typography**:

- Headings: Poppins (bold, clean sans-serif)
- Body: Inter (highly readable across devices)

- Accents: Montserrat (for buttons and interactive elements)

- **Iconography**: Simple, line-based icons with consistent style

- **Spacing System**: 8px base grid for consistent spacing
- **Animation**: Subtle, purposeful animations for transitions and feedback
- **Responsive Breakpoints**:
- Mobile: 320px - 480px
- Tablet: 481px - 768px
- Desktop: 769px+

Technology Stack

Frontend

- **Framework**: React.js with Next.js for server-side rendering and optimized performance
- **Styling**: Tailwind CSS for utility-first styling and rapid development
- **State Management**: React Context API for simpler state needs, Redux for more complex state
- **Animation**: Framer Motion for smooth, performant animations
- **Responsive Design**: CSS Grid and Flexbox with media queries

Backend

- **API Framework**: Node.js with Express for RESTful API endpoints
- **Authentication**: Firebase Authentication for user management
- **Database**: Firebase Firestore for flexible, scalable document storage
- **Serverless Functions**: Vercel Serverless Functions for API endpoints

AI Integration

- **Conversational AI**: OpenAI API integration for natural language processing
- **Recommendation Engine**: Custom algorithm using OpenAI embeddings for content matching
- **Content Analysis**: OpenAI API for analyzing user inputs and generating personalized responses

Content Integration

- **Video Content**: YouTube Data API for content embedding and metadata
- **Social Media Content**: Instagram Basic Display API for content integration
- **Content Caching**: CDN caching for improved performance of frequently accessed content

Deployment & Infrastructure

- **Hosting**: Vercel for frontend and serverless functions
- **Database Hosting**: Firebase for database and authentication services
- **CI/CD**: GitHub Actions for automated testing and deployment
- **Monitoring**: Sentry for error tracking and performance monitoring

Development Phases & Milestones

Phase 1: Setup & Foundation (Weeks 1-2)

- Set up development environment and project structure
- Implement basic authentication flow
- Create core UI components and design system
- Establish database schema and basic API endpoints
- Milestone: Functional project skeleton with authentication

Phase 2: Assessment Module (Weeks 3-4)

- Develop conversational UI for initial assessment
- Implement OpenAI integration for natural language processing
- Create interest and skill selection interfaces
- Build user profile data structure
- Milestone: Functional assessment flow saving user preferences

Phase 3: Visual Journey Development (Weeks 5-6)

- Implement interactive career path visualization
- Create employment category exploration interfaces

- Develop progress tracking and gamification elements
- Build achievement and reward system
- Milestone: Interactive visual journey for 3+ employment categories

Phase 4: Content Integration (Weeks 7-8)

- Implement YouTube API integration for video content
- Develop Instagram content integration
- Create content recommendation algorithm
- Build reflection prompts and feedback collection
- Milestone: Functional content exploration with embedded media

Phase 5: Output Generation (Weeks 9-10)

- Develop profile dashboard and summary views
- Implement career path justification generation
- Create skills gap analysis visualization
- Build action plan generator
- Milestone: Complete output generation with shareable profiles

Phase 6: Testing & Refinement (Weeks 11-12)

- Conduct comprehensive testing across devices
- Optimize performance and responsiveness
- Refine UI/UX based on initial feedback
- Fix bugs and address edge cases
- Milestone: Stable, optimized POC ready for user testing

Testing Approach

Functional Testing

- Unit tests for core components and functions
- Integration tests for API endpoints and data flow
- End-to-end tests for critical user journeys

Usability Testing

- Internal testing with team members
- Guided testing sessions with representative users
- Unmoderated testing for natural interaction observation

Performance Testing

- Load time optimization for initial page load
- API response time monitoring
- Animation performance on lower-end devices

Compatibility Testing

- Cross-browser testing (Chrome, Safari, Firefox, Edge)
- Cross-device testing (various screen sizes and resolutions)
- Network condition testing (slow connections, intermittent connectivity)

Risk Management

Technical Risks

- **OpenAI API limitations**: Implement fallback mechanisms and request caching
- **Content API changes**: Design modular integration that can adapt to API updates
- **Performance issues on mobile**: Implement progressive enhancement and lazy loading

User Experience Risks

- **Engagement drop-off**: Implement analytics to identify drop-off points and optimize
- **Confusion in career path visualization**: Conduct early usability testing to refine
- **Content relevance issues**: Develop content tagging and feedback mechanisms

Project Management Risks

- **Scope creep**: Maintain strict adherence to POC scope document
- **Timeline delays**: Build buffer time into each phase
- **Resource constraints**: Prioritize features based on core value proposition

Post-POC Considerations

Evaluation Metrics

- User engagement (time spent, features used)
- Completion rates for assessment and exploration
- User satisfaction (feedback collection)
- Technical performance metrics

Transition to Full Product

- Architecture scalability assessment
- Feature prioritization for post-POC development
- Technical debt identification and remediation plan
- User feedback incorporation strategy

Future Enhancement Opportunities

- Native mobile applications
- Advanced personalization algorithms
- Educational institution integrations
- Parent/guardian dashboard
- Comprehensive analytics and reporting

Development Environment Setup

Local Development

- Node.js and npm/yarn installation
- Git repository setup with branching strategy
- Environment variable configuration
- Local database setup

Collaboration Tools

- GitHub for version control
- Figma for design collaboration
- Slack/Discord for team communication
- Jira/Trello for task tracking

Documentation

- API documentation with Swagger/OpenAPI
- Component documentation with Storybook
- Setup and installation instructions
- Testing procedures and guidelines

Alignment with Product Backlog

This POC development plan addresses key user stories from the product backlog:

Initial Assessment and Onboarding

- Implements interactive self-assessment to uncover motivations
- Allows users to describe preferences to explore aligned opportunities
- Provides relatable prompts and examples during onboarding

Conversational AI & Reflection

- Enables exploration of career-related questions with an AI guide
- Summarizes learnings to show evolution of thoughts and preferences
- Visualizes the user's journey clearly

Content Discovery and Curation

- Provides curated videos about real roles and industries
- Allows questions about videos with relevant follow-up content
- Enables discovery of adjacent careers to broaden thinking

Decision Support & Journey Planning

- Helps narrow choices based on user profile
- Provides realistic future paths to explore concrete options
- Allows changing or resetting direction

Output & Sharing

- Creates shareable summaries of career exploration and reasoning
- Includes skills gaps and recommended next steps
- (Parent dashboard planned for future implementation)

Gamification & Feedback

- Includes optional side quests and micro-challenges
- Tracks milestones and provides badges for rewards
- Allows reaction to content for community feeling

Conclusion

This POC development plan provides a comprehensive roadmap for building the AI Career Guidance Tool, ensuring alignment with the defined scope and objectives while addressing the specific needs of the target audience. The plan balances technical

feasibility with user experience considerations, creating a foundation for a successful product that can evolve based on user feedback and business requirements.

By following this plan, the POC will deliver a working journey for several key employment categories with a minimalistic, engaging design inspired by social media apps and games that appeal to young adults. The integration of OpenAI for conversational capabilities and YouTube/Instagram for content will provide a rich, interactive experience that helps users explore career options in a meaningful way.