Problem 12.21

(Term Project) Draw up a software project management plan for the Chocoholics Anonymous product described in Appendix A.

Step-by-step solution

1. **Step 1** of 1

The plan is for the development of the Chocoholics Anonymous software product by a software development organization consisting of three individuals: Lerato, the owner of the company, and two software professionals, Johnson and Pravin.

***1.  Overview.***

***1.1 Project Summary.***

***1.1.1 Purpose, Scope, and Objectives.***The objective of this project is to develop a soft­ware product to perform data processing for Chocoholics Anonymous (ChocAn).  In par­ticular, the product must allow providers to submit claims to ChocAn using a specially designed provider terminal.  ChocAn operators must be able to maintain the data, and the manager must be able to request various reports.

***1.1.2 Assumptions and Constraints.*** Constraints include the following:

The deadline must be met.

The budget constraint must be met.

The product must be reliable.

The architecture must be open so that additional functionality may be added later.

The product must be user-friendly.

***1.1.3  Project Deliverables.***The complete product, including user manual, will be deliv­ered 10 weeks after the project commences.

***1.1.4  Schedule and Budget Summary.***The duration, personnel requirements, and budget of each workflow are as follows:

Requirements workflow (1 week, two team members, $4,000)

Analysis workflow (2 weeks, two team members, $8,000)

Design workflow (2 weeks, two team members, $8,000)

Implementation workflow (3 weeks, three team members, $18,000)

Testing workflow (2 weeks, three team members, $12,000)

The total development time is 10 weeks and the total internal cost is $50,000.

***1.2  Evolution of the Project Management Plan.***All changes in the project management plan must be agreed to by Lerato before they are implemented.  All changes should be documented in order to keep the project management plan correct and up to date.

***2.  Reference Materials.***All artifacts will conform to the company’s programming, documentation, and testing standards.

***3.  Definitions and Acronyms***.  Chocoholics Anonymous (ChocAn); ChocAn is the client.

***4.  Project Organization.***

***4.1  External Interfaces.***All the work on this project will be performed by Lerato, John­son, and Pravin.  Lerato will meet weekly with the client to report progress and discuss possible changes and modifications.

***4.2  Internal Structure.***The development team consists of Lerato (owner), Johnson, and Pravin.

***4.3  Roles and Responsibilities***.  Lerato and Johnson will perform the design work­flow.  Lerato will design the database and construct the artifacts to maintain the data.  Johnson will construct the artifacts needed for the providers to verify members and submit claims, and Pravin will develop the artifacts that handle reports.  Each member is responsible for the quality of the artifacts he or she produces.  Lerato will oversee integration and the overall quality of the soft­ware product and will liaise with the client.

***5.  Managerial Process Plans.***

***5.1  Start-up Plan.***

***5.1.1  Estimation Plan.***As previously stated, the total development time is estimated to be 10 weeks and the total internal cost to be $50,000.  These figures were obtained by expert judgment by analogy, that is, by comparison with similar projects.

***5.1.2  Staffing Plan.***Lerato is needed for the entire 10 weeks, for the first five weeks as manager, analyst and designer and for the second five weeks as manager, programmer and tester.  Johnson is needed for the entire 10 weeks, for the first 5 weeks as systems analyst and designer, for the second 5 weeks as programmer and tester.  Pravin is needed for the second five weeks as programmer and tester.

***5.1.3  Resource Acquisition Plan.***Other organizations are responsible for the communi­cations software, for designing the provider’s terminal, for the software needed by Acme Accounting Services and for implementing the EFT component.  The server and client work stations needed by ChocAn at the Data Center are already available.  The hardware, software and CASE tools required for developing the software are already available.  The product will be delivered to ChocAn installed on its server and client work stations and on a prototype provider terminal.

***5.1.4  Project Staff Training Plan.***No additional staff training is needed for this project.

***5.2  Work Plan.***

***5.2.1–2  Work Activities and Schedule Allocation.***

Week 1. (Completed) Met with client, determined requirements artifacts.  Inspected requirements artifacts.

Weeks 2, 3. (Completed) Produced analysis artifacts, inspected analysis artifacts.  Showed artifacts to client, who approved them.  Produced project man­agement plan, inspected project management plan.

Weeks 4, 5.  Produce design artifacts, inspect design artifacts.

Weeks 6–10. Implementation of database.  Implementation and inspection of each class, unit testing and documenta­tion, integration of each class, integration test­ing, product testing, docu­mentation inspection.

***5.2.3  Resource Allocation.***The three team members will work separately on their assigned artifacts.  Lerato’s assigned role will be to monitor the daily progress of the other two, oversee implementation, be responsible for overall quality, and interact with the client.  Team members will meet at the end of each day and discuss problems and progress.  Formal meetings with the client will be held at the end of each week to report progress and determine if any changes need to be made.  Lerato will ensure that sched­ule and budget requirements are met.  Risk management will also be Lerato’s responsi­bility.

Minimizing faults and maximizing user-friendliness will be Lerato’s top priorities.  Lerato has overall responsibility for all documentation and has to ensure that it is up to date.

***5.2.4  Budget Allocation.***The budget for each workflow is as follows:

|  |  |
| --- | --- |
| Requirements workflow | $4,000 |
| Analysis workflow | 8,000 |
| Design workflow | 8,000 |
| Implementation workflow | 18,000 |
| Testing workflow | 12,000 |
| Total | $50,000 |

***5.3  Control Plan.***Any major changes that affect the milestones or the budget have to be approved by Lerato and documented.  No outside quality assurance personnel are involved.  The benefits of having someone other than the individual who carried out the development task do the testing will be accomplished by each person testing another per­son’s work products.

Lerato will be responsible for ensuring that the project is completed on time and within budget.  This will be accomplished through daily meetings with the team members.  At each meeting, Johnson and Pravin will present the day’s progress and problems.  Lerato will determine whether they are progressing as expected and whether they are following the specification document and the project management plan.  Any major problems faced by the team members will be reported to Lerato immediately.

***5.4  Risk Management Plan.***The risk factors and the tracking mechanisms are as follows:

 There is no existing product with which the new product can be compared.  Accordingly, it will not be possible to run the product in parallel with an existing one.  Therefore, the product should be subjected to extensive testing.

 The client is assumed to be inexperienced with computers.  Therefore, special attention should be paid to the analysis workflow and communication with the client.  The product has to be made as user-friendly as possible.

 Due to the ever-present possibility of a major design fault, extensive testing will be per­formed during the design workflow.  Also, each of the team members will initially test his or her own code then test the code of another member.  Lerato will be responsible for integration testing and in charge of product testing.

 The information must meet the specified storage requirements and response times.  This should not be a major problem because of the small size of the product, but it will be monitored by Lerato throughout development.

 There is a slim chance of hardware failure, in which case another machine will be leased.  If there is a fault in the compiler, it will be replaced.  These are covered in the warranties received from the hardware and compiler suppliers.

 The provider terminal prototype may not be ready in time for testing during development.  A simulation command line interface will be written to run on a personal computer.  As soon as a provider terminal prototype is ready, it will be used for testing the software.

***5.5  Project Close-out Plan.***Not applicable here.

***6  Technical Process Plans.***

***6.1  Process Model.***The Unified Process will be used.

***6.2  Methods, Tools, and Techniques.***The workflows will be performed in accordance with the Unified Process.  The product will be implemented in Java.

***6.3  Infrastructure Plan.***The product will be developed using ArgoUML running under Linux on a personal computer.  MySQL will be used for the database.

***6.4  Product Acceptance Plan.***Acceptance of the product by our client will be achieved by following the steps of the Unified Process.

***7  Supporting Process Plan***

***7.1  Configuration Management Plan.***CVS will be used throughout for all artifacts.

***7.2  Testing Plan.***The testing workflow of the Unified Process will be performed.

***7.3  Documentation Plan.***Documentation will be produced as specified in the Unified Process.

***7.4–5  Quality Assurance Plan and Reviews and Audits Plan.***Johnson and Pravin will test each other’s code and Pravin will test Lerato’s code.  Lerato will conduct integration testing.  Extensive prod­uct testing will then be performed by all three.

***7.6  Problem Resolution Plan.***As stated in 5.3, any major problems faced by the team members will be reported to Lerato immediately.

***7.7  Subcontractor Management Plan.***Not applicable here.

***7.8  Process Improvement Plan.***All activities will be conducted in accordance with the company plan to advance from CMM level 2 to level 3 within 2 years.

***8.  Additional Plans***.  Additional components:

***Security.***A provider must enter his provider number before any functions will be available on the provider terminal.  Passwords will be needed to access the database. The same passwords will be needed to use the product on the client work stations.  One person will be assigned as the database administrator.

***Training.***Training will be performed by Lerato at time of delivery.  Because the prod­uct is straightforward to use, 1 day should be sufficient for training.  Lerato will answer questions at no cost for the first year of use.

***Maintenance.***Corrective postdelivery maintenance will be performed by the team at no cost for a period of 12 months.  In addition, a separate contract will be drawn up regard­ing enhancement.

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