Here's an enhanced and more detailed 45-day study plan for your friend to clear the **AWS Certified Solutions Architect - Associate (SAA-C03)** exam, with a focus on covering all important topics efficiently while dedicating enough time to practice and revision.

**AWS Solution Architect 45-Day Study Plan**

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| **Week** | **Days** | **Topics** | **Details** | **Hands-on Labs & Actions** | **Key Resources** |
| **Week 1** | 3-Jan | **EC2, Load Balancers, Auto Scaling** | Review EC2 types, pricing models, key pairs, security groups, Auto Scaling concepts, Elastic Load Balancers. | Launch EC2 instances, configure Auto Scaling groups with ELB. | AWS EC2 & ELB documentation, Auto Scaling best practices. |
|  | 5-Apr | **S3 & CloudFront** | S3 storage classes, security policies (Bucket Policies, ACLs), versioning, CloudFront for content delivery. | Create S3 buckets, configure policies, and set up CloudFront distribution. | S3 Documentation, CloudFront Documentation. |
|  | 7-Jun | **IAM & Security** | IAM roles, policies, MFA, encryption (KMS), security best practices. | Set up IAM roles, policies, and enable MFA, configure KMS encryption. | IAM & KMS Documentation, AWS Security Whitepapers. |
| **Week 2** | 9-Aug | **RDS & DynamoDB** | Overview of RDS (MySQL, PostgreSQL, Aurora), DynamoDB (partition key, sort key, GSI, LSI). | Set up an RDS instance, configure DynamoDB tables with indexes. | RDS Documentation, DynamoDB best practices. |
|  | 11-Oct | **VPC & Networking Basics** | VPC components (subnets, route tables, IGW, NAT), Security Groups vs NACLs, CIDR, peering. | Set up a custom VPC, configure public and private subnets, attach NAT, and configure Security Groups. | VPC Documentation, AWS Networking Whitepaper. |
|  | 14-Dec | **CloudFormation & Infrastructure as Code** | CloudFormation templates, stack management, YAML/JSON template creation. | Deploy CloudFormation templates for EC2, VPC, and S3 setups. | CloudFormation Documentation, Infrastructure as Code principles. |
| **Week 3** | 15-16 | **Lambda & Serverless** | Lambda functions, API Gateway integration, event-driven architecture, AWS Step Functions. | Deploy Lambda function triggered by an S3 event or API Gateway. | AWS Lambda & API Gateway Documentation. |
|  | 17-18 | **Elastic Beanstalk & ECS** | Elastic Beanstalk deployment models, ECS with Fargate, EKS basics. | Deploy an application using Elastic Beanstalk, create a cluster with ECS. | AWS Elastic Beanstalk & ECS Documentation. |
|  | 19-21 | **CloudWatch & Monitoring** | CloudWatch metrics, CloudTrail, alarms, SNS, CloudWatch Logs. | Set up CloudWatch metrics for EC2, configure alarms, and SNS notifications. | AWS CloudWatch Documentation, Monitoring best practices. |
| **Week 4** | 22-23 | **High Availability & Disaster Recovery** | Multi-AZ, Elastic Load Balancer, Cross-Region Replication (S3), RTO/RPO strategies. | Set up Multi-AZ RDS instances, enable cross-region S3 replication. | Well-Architected Framework (Resiliency Pillar). |
|  | 24-25 | **Route 53 & Global Architectures** | Route 53 routing policies (latency, failover, geolocation), CloudFront, Global Accelerator. | Configure Route 53 latency-based routing policies, deploy a CloudFront distribution. | AWS Route 53 & Global Accelerator Documentation. |
|  | 26-28 | **Cost Management & Pricing** | AWS pricing models (Savings Plans, Spot, Reserved Instances), Cost Explorer, budgeting. | Review cost using AWS Cost Explorer, set up budgets and alarms. | AWS Pricing Documentation, Cost Optimization Whitepaper. |
| **Week 5** | 29-30 | **Well-Architected Framework** | Review the 5 pillars: Security, Reliability, Performance, Cost, Operational Excellence. | Use the Well-Architected Tool to assess a sample architecture. | AWS Well-Architected Framework Whitepapers. |
|  | 31-32 | **S3 & EFS for Storage Solutions** | S3 advanced features, lifecycle policies, EFS (Elastic File System) for persistent storage. | Set up lifecycle rules for S3 objects, configure EFS for EC2. | AWS S3 & EFS Documentation. |
|  | 33-34 | **Advanced Security & Identity** | AWS Organizations, SCPs (Service Control Policies), Security Hub, GuardDuty, AWS Inspector. | Configure a Security Hub, enable GuardDuty for monitoring, review AWS Inspector reports. | AWS Security Hub, GuardDuty, Organizations Documentation. |
| **Week 6** | 35-36 | **Advanced Networking (VPC Peering, Transit Gateway)** | Review VPC Peering, Transit Gateway, VPNs, Direct Connect. | Set up VPC peering, configure a Transit Gateway. | AWS Networking Documentation. |
|  | 37-38 | **Elastic Load Balancing & Auto Scaling Deep Dive** | Deep dive into load balancers (ALB, NLB), Auto Scaling for resilience and scaling. | Create ALB with Auto Scaling policies for a web app. | AWS Auto Scaling Documentation, ELB Best Practices. |
|  | 39-40 | **Final Exam Strategy & Practice Tests** | Review all topics, time management strategies, key areas from practice exams. | Complete full-length timed practice exams. | Whizlabs, Tutorials Dojo Practice Exams. |
| **Week 7** | 41-42 | **Mock Exams & Targeted Revision** | Revisit weak areas identified in mock exams (e.g., VPC, EC2, IAM). | Focus on hands-on labs for weak topics, redo practice tests for improvement. | AWS Whitepapers, FAQs, Well-Architected Framework. |
|  | 43-45 | **Final Exam Preparation & Relaxation** | Light review of flashcards or quick notes, get sufficient rest, no cramming. | Relax, ensure you're well-rested for the exam. | Relaxation and review any last-minute notes. |

**Week 1: Core AWS Services & Security**

* **Goal:** Refresh and reinforce the fundamental AWS services like EC2, S3, IAM, and core security concepts.
* **Hands-on Focus:** EC2, S3 policies, IAM roles and policies, VPC basics.
* **Key Outcomes:** Solid understanding of core AWS services and their practical implementations in a cloud environment.

**Week 2: Database, Networking, and Infrastructure as Code**

* **Goal:** Master database services, networking (VPC), and begin Infrastructure as Code with CloudFormation.
* **Hands-on Focus:** RDS, DynamoDB, VPC subnets and routing, CloudFormation for automated deployments.
* **Key Outcomes:** Deepened understanding of databases and networking while beginning automation with CloudFormation.

**Week 3: Serverless, Containers & Monitoring**

* **Goal:** Focus on serverless (Lambda), container services (ECS, Elastic Beanstalk), and AWS monitoring tools.
* **Hands-on Focus:** Lambda functions, API Gateway, ECS, CloudWatch metrics, CloudTrail, SNS alarms.
* **Key Outcomes:** Practical experience with serverless architectures and monitoring/logging tools in AWS.

**Week 4: High Availability, Global Architectures, & Cost Management**

* **Goal:** Learn to build resilient and scalable architectures with global distribution, along with cost optimization.
* **Hands-on Focus:** Multi-AZ setups, Route 53 routing policies, AWS cost explorer, budgets.
* **Key Outcomes:** Gain skills in designing highly available, globally distributed, and cost-efficient architectures.

**Week 5: Well-Architected Framework & Advanced Security**

* **Goal:** Master the AWS Well-Architected Framework and reinforce security best practices with advanced tools.
* **Hands-on Focus:** Well-Architected Tool assessments, AWS Organizations, Security Hub, GuardDuty setup.
* **Key Outcomes:** Strengthen architecture design according to AWS's best practices and enhance security expertise.

**Week 6: Advanced Networking, Load Balancing & Auto Scaling**

* **Goal:** Deep dive into networking (VPC Peering, Transit Gateway), load balancing, and scaling architectures.
* **Hands-on Focus:** VPC peering, Transit Gateway setup, ALB with Auto Scaling for web apps.
* **Key Outcomes:** Competency in advanced networking and load balancing for building scalable cloud solutions.

**Week 7: Mock Exams & Final Review**

* **Goal:** Focus on taking mock exams, reviewing weak points, and resting to be fully prepared for the exam.
* **Hands-on Focus:** Redoing hands-on labs for weak areas (e.g., VPC, Auto Scaling), revising key concepts.
* **Key Outcomes:** Enhanced exam readiness with strong practical skills and the ability to handle exam pressure.

**Key Resources**

* **Practice Exams:** Tutorials Dojo, Whizlabs, Udemy.
* **AWS Whitepapers:** Well-Architected Framework, AWS Security Best Practices.
* **FAQs & Documentation:** S3, EC2, IAM, RDS, VPC, Lambda, CloudFront